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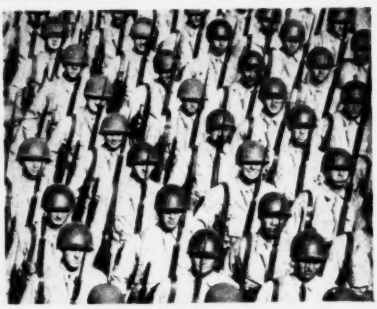
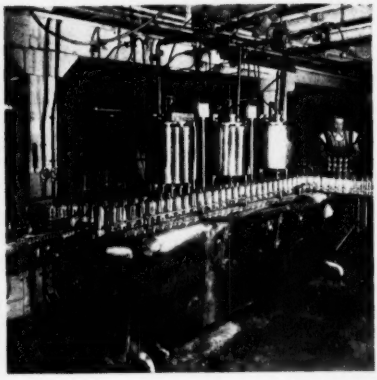
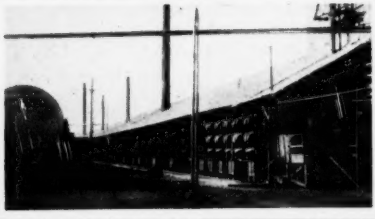
August 4, 1951 Price 35 cents







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Watch a trend as large specialty makers fill their own aerosols; but custom-filling is still big . . . . p. 25

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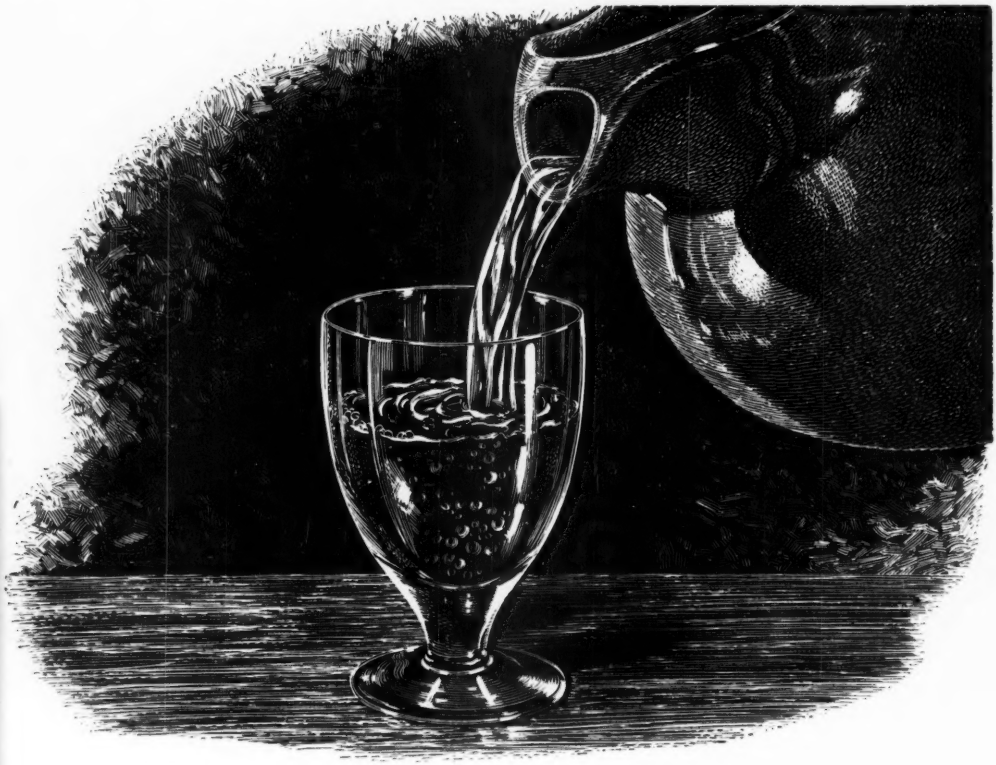

"A glass of water, please"

All over America, clear, pure drinking water can usually be had for the asking. But that glass of water so casually given and accepted is the result of careful planning and processing by water supply officials everywhere. And in their constant effort to combat water borne contamination, chlorine and its related products are major weapons.

Long a powerful oxidizing agent for bleaching as well as for sanitizing, chlorine is in growing demand for these uses. Today, however, the chief application for chlorine is as a raw material in the manufacture of other chemicals. Insecticides and weed-killers; pharmaceuticals; antifreeze; chlorinated hydrocarbons for dry cleaning; degreasers and refrigerants; synthetic glycerine; chlorinated styrene and polyvinyl chlorides for plastics and rubber—these uses of chlorine promise to show continued heavy expansion.

For many years a major supplier of chlorine products for sanitation use, Mathieson is expanding its activities in other chlorine-consuming fields to meet the growing needs of industry, agriculture and public health.

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Chemical Week

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OPINION . . . . .

Two-Fold Responsibility

TO THE EDITOR: I have just read your excellent news story "Coming: Tougher Food Law" . . .

The situation, as it now stands, is very well summarized in this article. I feel very strongly that such information should be brought to the attention of as many individuals and groups within the chemical and food industries as possible.

I was especially glad to see the MCA suggestion stated so clearly . . . with a definite distinction being made between *notification* and *precertification*. There should be no misunderstanding on this point!

Our MCA Committee on Chemicals in Foods is making a very earnest effort to study the many problems involved in this complex subject. We recognize a two-fold responsibility in this field: on the one hand, a thorough protection of the public from the injudicious use of potentially harmful chemicals, and on the other hand and most certainly of great importance, the stimulation and promotion of progress in the development and use of desirable chemicals that contribute to the quality and quantity of our food supply.

We will welcome information and suggestions regarding this matter of utmost importance.

H. C. SPENCER
Chairman
MCA Committee on
Chemicals in Foods
Midland, Mich.

Reader Spencer, and the members of his Committee, are to be commended for their efforts on behalf of the industry, consciousness of their two-fold responsibility.

The Manufacturing Chemists' Association feels (and CW does also) that it should be law that the FDA be prenotified of any planned use of a new chemical in foods but that any requirement for precertification would be unwise, improper. One reason: It would set the FDA up as a bureaucratic judge and jury, by-pass the traditional American safeguards of judicial review.—ED.

Over-Extrapolation

TO THE EDITOR: I may be just getting in line with a number of other readers, but I could not resist pointing out to you the danger of extrapolating data as exemplified in "Alkali Price Change Ahead" (June 30). . . .

The graph of "U. S. Caustic Soda Production" clearly indicates that in 1957 there will be more electrolytic caustic soda produced than total caustic soda. I find this a little difficult to swallow. . . .

NORMAN C. UPDEGRAFF
Assistant Technical Director
The Girdler Corporation,
Louisville, Ky.

CW pleads guilty, has chided the over-zealous draftsman who extrapolated the curves, carried them on to a 1957 intersection—and beyond. What the graphs were intended to highlight: by that year essentially all U. S. caustic soda output will be electrolytic.—ED.

Essential Distinction

TO THE EDITOR: . . . Your article "Coming: Tougher Food Law" (July 14) is a very fine summary of the situation.

There is only one point in your story which appears to need amplification, and that is "precertification" as opposed to "notification" of the use of chemicals in foods. . . Such amplification appears to be almost essential since . . . there have been erroneous reports published in other journals saying that the Manufacturing Chemists Association suggests that the FDA certify food chemicals before use.

As your article indicates, this is the last thing which MCA wants. . . .

JOHN H. FOULGER,
Director,
Haskell Laboratory
of Industrial Toxicology
E. I. du Pont de Nemours
& Co., Inc.
Wilmington, Del.

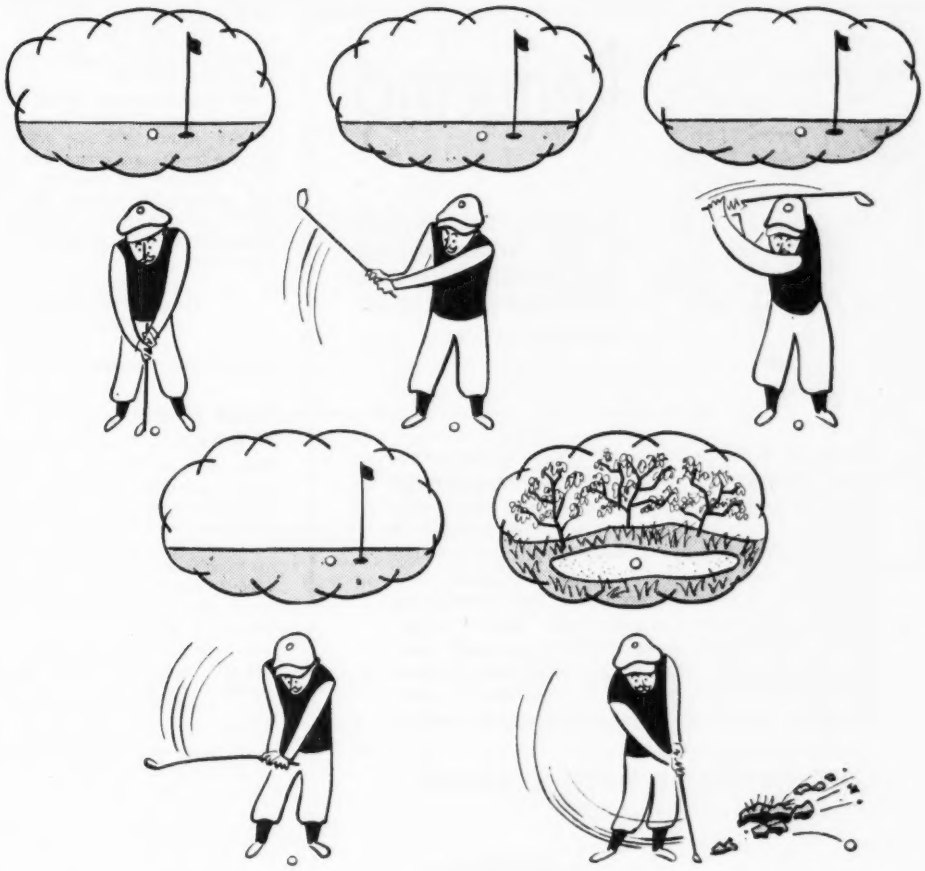
Right. As Reader Foulger points out a careful distinction must be made between prenotification and the sweeping precertification FDA seeks. —ED.

Fluorocarbon Lube

TO THE EDITOR: . . . This may add a cloud to your otherwise sunny editorial skies . . . but we must keep the record straight.

We read your news story "Aerosol Solves Lubricant Problem" (July 14). . . . It's a very nice article but isn't true in every detail.

You cite the work of the Army Engineer Research & Development Laboratories . . . mention that "petroleum lubricants cannot be used with oxygen plants, "so a fluorocarbon (Dow



Think a stroke ahead

We got that from an old duffer we know.
He'd say, "If you want to get some place on a course you've got to know where you want to go.
And that takes thinking ahead."

And when your production capacity hinges on process materials like soda ash, we think it makes sense to think ahead about a reliable source of supply.

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OPINION . . . . . .

Chemical product) is employed . . . called fluorolube HG."

So far as we know, Dow Chemical does not manufacture a fluorocarbon of this nature. We, as makers of Fluorolube HG, are aware of its value as a lubricant for handling oxygen and other highly reactive chemicals. And Fluorolube is our trademark registered with the U. S. Patent Office last October. . . .

A. VAUGHAN CHINNOCK
Hooker Electrochemical Co.
Niagara Falls, N. Y.

Sorry. A clumsy fumble.—ED.

Tariff Dissent

TO THE EDITOR: I have read with interest your June 9 article on chemical tariffs and the subsequent correspondence thereon. . . . I understand the reasons underlying the commonly held point of view, but I contend that the basic reason is self-interest—a self-interest that shamefully contradicts our national policy as expressed in the Point IV program. . . .

It seems perfectly apparent to me that the standard of living depends directly on productivity. . . . If Americans can build automobiles most efficiently and Czechoslovakians can make shoes more efficiently, wouldn't we all benefit by selling them our cars and buying their shoes?

Last year I saw . . . an old chair with a motto carved into the elaborate design on its back: "Protection, the Nation's Hope." That motto, I submit, is as outmoded as the 1880 chair on which it is carved. We constantly brag that our technology is a match for the rest of the world's cheap labor, but we're apparently afraid to test our claims. . . .

We all recognize that the present world situation makes the ideal—free trade—impossible of achievement; defense is now a primary issue. But we can at least hope for a happier day, when breaking down the economic barriers that separate peoples will remove a basic cause for war. The Torquay agreements and reciprocal trade pacts are a first step. . . .

JOHN E. MCCLINTOCK
Seattle, Wash.

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.
Address all correspondence to: The Editor, Chemical Week, 330 W. 42nd St., New York 18, N. Y.

NEWSLETTER

Chemical investors' hearts were light this week as semiannual reports flooded the mails. Most of them brought best news ever.

American Cyanamid's six-months net was $23,455,179—almost double last year's comparable figure of $12,898,401. Sales rose 39% to over $200 million.

Three-for-one stock splits seem to be the fashion this season as companies seek to broaden the potential ownership base. Freeport Sulphur is planning a split, and Merck stockholders will vote next month on their board's recommendation. Merck's sales for the half-year were up 50% to $60 million, and net was about $7.2 million—up 80%.

Commercial Solvents' sales almost doubled ($15.2 million to $30.2 million) and profits more than doubled ($1.3 million to $3.1 million); and Diamond Alkali showed a 40% sales gain, a 62% profit jump.

But higher Federal taxes often soured the sweetness of gross profit gains. Carbide & Carbon had higher sales but a lower net, and Air Reduction had a 50% higher profit before taxes but a slightly lower net after the Government's bite. (The final net was higher but only as a result of an extraordinary credit.)

Further financial news concerns a merger and an ownership change:

Dow Chemical Co. has sold its 20% interest in Thiokol Corp. Dow bought into the firm in 1939 when it manufactured some materials for Thiokol. When Thiokol built its own plant in 1948, Dow discontinued production and interests were no longer related.

Mathieson Chemical Corp. will absorb Mathieson Hydrocarbon if stockholders agree. Each share of the latter's common stock will be exchanged for two-thirds of a Mathieson Chemical share.

Supplying large-scale aromatic raw materials is a new field of operations for Carbide & Carbon—usually thought of as an aliphatics supplier. It is now selling tank-car quantities of toluene.

Look for news to break next month on a new arthritis palliative, scheduled to be launched with a big advertising and promotion campaign. Chief ingredient is a nitrogen-containing salicylic acid derivative.

B. F. Goodrich Chemical Co. is beating the steel shortage by moving a whole building from Akron to Avon Lake (near Cleveland).

Originally used at Akron for manufacture of rubber and rubber chemicals, the two-story steel building has been vacant since Goodrich expanded in the Avon Lake area. At its new location it will serve as a large pilot plant for working with chemical intermediates.

In another area, Calvert City, Ky., Goodrich will build a $5 million vinyl chloride monomer plant.

Wage pattern for the rubber industry? Firestone workers in Hamilton, Ont., won a 12¢-an-hour wage boost retroactive to July 6. The United Rubber Workers (CIO) represents 1,500 employees there.

Still later dope on certificates of necessity (see p. 11): At latest count the chemical and allied industries have filed 889 applications for $2,426,000,000 worth of plants.

So far 172 applications have been approved, representing $717 million in new capacity; but since over-all percentage certified is only 60%, only about $397 million will get fast write-off.

During the same time 43 applications, involving about $29 million of new construction, were turned down.

Value of a certificate is pointed up by the shortage of alloy steel products; commitments are hard to come by unless the proposed construction is covered by a certificate. Nickel alloys are a particularly sore spot. Other usual construction materials—concrete, ordinary steel and lumber—can usually be rounded up with a little scratching around.

Mexico may fill the breach if Iranian oil production hits a long-time snag. Secretary of Interior Chapman flew down to Mexico City last week; and while he admitted only to a discussion of "mutual problems of production and development," observers linked his visit with the Iranian crisis—which has now shut down the Abadan refinery.

Chief bottleneck in Mexican oil output is steel pipe—which U.S. must supply. Another is exploration. Pemex (the government oil monopoly) is now dickering for U.S. pipe, U.S.-drilled wells.

Another gap-filling operation is the Navy's adoption of clear plastic containers, replacing tin-coated steel cans, for its Ordnance Bureau's shipments of equipment.

Advantages of the plastic: saves tin and steel, reusable, transparent—which encourages more careful handling of fragile equipment. Higher cost is a present drawback, but mass production will conquer it.

Acetylene, methylene chloride, allethrin and ethyleneimine are four newsworthy commodities this week:

Chemical Construction Corp. has acquired exclusive North American rights to the Badische (former I.G.-Farben unit) process—a partial oxidation of natural gas to acetylene, presumably with tonnage oxygen. A solvent extraction process will separate the product from the gas stream.

Two grades of methylene chloride are traditionally made: crude, for paint remover; and refined, for safety film, metal cleaner and synthesis applications. Because of high military demands for safety film, producers have voluntarily agreed to drop the crude grade after September 1. Larger production next year may permit its resumption.

Chemirad Corp. is substantially upping output of ethyleneimine. Pilot-plant quantities are now going for about a third of last year's price as Chemirad attempts to develop it into an industrial chemical.

Applications for certificates of necessity throw light on plans for allethrin. U.S.I.'s planned capacity is 36,500 lbs. per year; Carbide's is 500,000 lbs.

Don't let General Motors' "Le Sabre" fool you: The use of methyl alcohol as a supplementary fuel was strictly stunt stuff—for added speed and horsepower. GM does not foresee its use on production cars.

. . . The Editors

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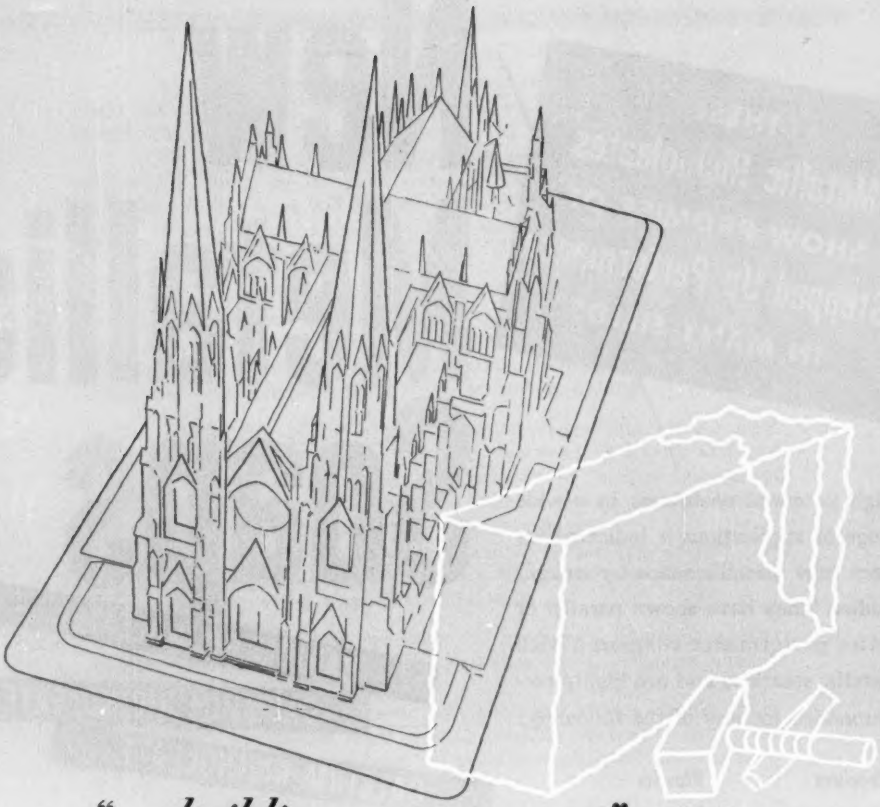

"....*building* A CATHEDRAL...."

A philosopher stood watching three stonecutters and of each in turn he asked: "What are you doing?" The first said: "I am cutting stone." The second: "Why, I am earning a dollar an hour!" The third said quietly: "I am building a Cathedral."

This is a very old and oft repeated story. We tell it again because its essence, the turn-of-mind of the third stonecutter, shared by chemists, explains the success of the American Chemical Society now celebrating its Diamond Jubilee. The nation's chemists with their deep professional interest far beyond any immediate task, have abundantly fulfilled their credo of *"fostering public welfare and education, aiding the development of our country's industries and adding to the material prosperity and happiness of our people."*

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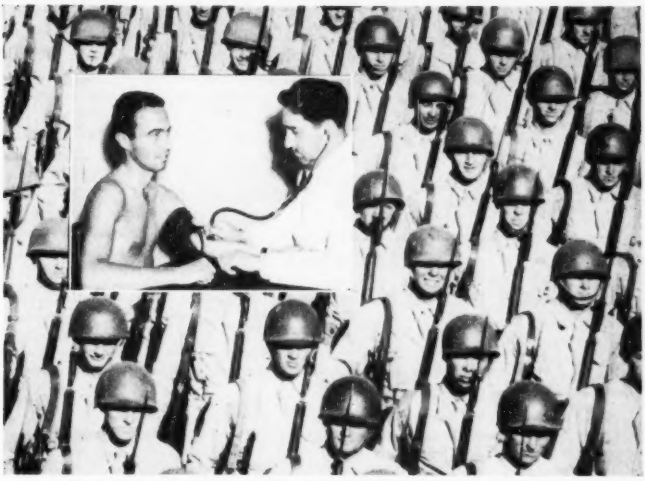

WHILE "JOHNNY" MARCHES: Military leave plans pave return to job.

Employees in Uniform

Company military leave and benefit plans lose "emergency" status; become permanent fixtures as draft calls continue.

CW survey finds most chemical companies do much more for employee-servicemen than minimum required by law.

Hospitalization, pension plans, seniority cumulation among "extras" offered to tempt veterans back to "old" companies.

A cease-fire in Korea isn't going to slacken the Armed Forces' demand for men, this year anyway. In fact, draft calls will be boosted. Last week, the Defense Department increased its August quota from 22,000 to 35,000 men. And for the first time in its history, except for a brief period during World War II, the Marine Corps is making use of the draft to fill out its ranks.

All of which means that employee military benefit and leave programs adopted by many chemical companies during World War II and extended to cover the Korean fracas will of necessity lose their "emergency" status and become full fledged fixtures of company policy. And, as the period of partial mobilization continues to stretch out, the quality of a company's military leave program may well become a major determinant of its position in a sellers' labor market.

Baker's Dozen: In view of this situation it is not surprising that the majority of chemical companies have formal military leave and benefit programs that go considerably beyond the minimum requirements of the law. Said law (Universal Military Training and Service Act) has prime purpose of making sure that the returning serviceman gets back his old job or one of "like seniority, status and pay."

CW Survey: This week, a national survey by CHEMICAL WEEK of 35 chemical companies revealed that 21 of them have plans that provide for generous lump sum payments to employees leaving for service and the continuation of many other company benefits during the period of service. The 14 companies without formal programs consisted for the most part of small concerns who have not yet felt the full hot breath of the draft.

Of the 21 companies with military leave programs only one has a different setup for salaried employees as distinct from wage employees. In this case the salaried employees upon departure for military duty receive two weeks' pay in addition to accrued vacation pay. Wage employees get only the vacation pay due. All of the plans however, extend equal benefits regardless of the sex of the departing warrior.

Size of Payment: There is a considerable variation from company to company in the size of the parting payment, often referred to as the "tide-over." It is usually calculated on an accrued vacation *plus* basis, the big difference being in the size and method of payment of the *plus*.

Eighteen of the companies replying to the CW survey said that in addition to vacation pay, a parting employee is given a two weeks tide-over stipend, if he has been with the company for a year. In most cases this amount is doubled if the period of employment exceeds two years. Seven of the companies queried present a one-month's pay check after only a year's service, if the employee has dependents. Another company has the practice of presenting the employee with two monthly pay checks; one the day he leaves, the other the day he returns from service.

The most bountiful plan encountered in the survey was one in which the tide-over pay was based on a scale graduated to length of company service. Six years of service with the company brings a 13 week "goodbye" pay check.

Salary Route: Five of the companies replying to the CW poll report that instead of a tide-over payment, they make up the difference between the employee's service pay and the pay he

CW INDEX

to Volume 68, Jan.-June 1951, is now in press and will be available free on request. It will not be bound in a regular issue but will be printed separately. Address requests to Chemical Week, Editorial Dept., 330 W. 42nd St., New York 18, N. Y.

would ordinarily receive were he still a civilian. In these instances, the company payment is limited to one half that of the man's civilian salary.

Sixteen of the companies questioned reported that they usually present military payments directly to the employee upon his departure. But three of these, in addition to those who pay the difference between service and civilian pay, will send payments, if requested, directly to dependents.

Other Benefits: Just as with the tide-over payments there is a considerable variance among companies in the magnitude of other benefits they extend to service bound employees, the CW poll revealed. In practically all cases, however, military service is considered a leave of absence in the real sense of the term. Non-contributory pension plans continue in effect. Contributory pension plans do not.

PRIMER: Story with a happy ending.

Group hospitalization for the family of the employee may or may not be continued depending upon the individual company. About half of the companies questioned will continue to carry the hospitalization on the group rate, if the employee's family contributes. Five of the companies replying revealed that they carry the entire hospitalization load for the employee's family for a period of 21 months after the breadwinner's induction. Group life insurance is carried in most cases for a period of only a few months.

Home-coming: The seniority of the returning veteran is assured by law. But here again, many companies go beyond the mere minimum requirements. Eight of the companies replying to the CW canvass, for instance, said that under their military leave plans, seniority for the veterans is treated as cumulative. The returning employee doesn't go back at his old level, but at the seniority level he would have reached had military service not intervened.

Special Departments: Some chemical companies attach enough importance to the whole problem of employees in uniform to create special administrative departments to implement their military leave and benefit plans.

One company, replying to CW's poll, disclosed that its Military Service Department in addition to regular duties is charged with the responsibility to forward birthday cards, get well cards and gifts to employees in military service as the occasion demands. Periodical reports of company doings are sent along too.

The department also maintains an up-to-date file of the addresses of its men and women in service and regularly informs these people of whereabouts of other company service people in the vicinity. Object: To make the employee's lot in service a bit more convivial and keep an interest in his company glowing. After all, today's corporal may be tomorrow's corporate executive.

GOVERNMENT NEEDS

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August 8	9293	264 bot	Methyl Purple Indicator Solution
August 9	9292	960 lb	Cuprous-Cyanide
Regional Information Officer, Region 3, General Services Administration, Washington 25, D.C.:			
August 13	49	2,000 lb	Lithium Chloride
August 13	48	110 gal	Pyrethrum Concentrate
Chief, Procurement Division, Supply Service, Veterans Admin., Washington 25, D.C. (Attn. C. C. Hoskinson)			
August 13	5-30	130,320 lb	Soap, Chip
		130,460 lb	Laundry, Bar, Ordinary, 16 oz. cake
		239,200 lb	Laundry, Powdered
		32,800 lb	Laundry, Powdered, Low Titer
		76,912 (½ lb)	Toilet, Floating, White, 2 oz. cake
		62,362 (½ lb)	Toilet, Floating, White, 6 oz. cake
Chicago Quartermaster Depot, QM Purchasing Division, Chicago, Ill.:			
August 13	29B	100,000 lb	Soda, Baking
Armed Services, Medical Procurement Agency, 84 Sands Street, Brooklyn, New York:			
August 10	11B	5,184 Bx	Procaine Hydrochloride, 9.1 GM (1-½ Gr 10S) USP
		11,016 Bx	Procaine Hydrochloride, 0.5 GM (2-½ Gr) 10S USP
		12,288 Bx	Procaine Hydrochloride, Injection—20 Mg (1/3 GR)
		32,676 can	Procaine Hydrochloride, with Epinephrine
		8,000 Bx	Silver Nitrate Solution Ammoniacal —2 Cc—6S NF
Chief, Procurement Division, Supply Service, Veterans Admin., Washington, D.C. (Attn. C. C. Hoskinson):			
August 15	S-33	2,280 bag	Sodium Metaphosphate, 100 lb bag

GOVERNMENT AWARDS

Item	Supplier	Location
Aviation Supply Office, 700 Robbins Ave., Philadelphia 11, Pa.:		
Primer, synthetic, corrosion resisting	McCabe Paint & Varnish Co.	Irvington 11, N.J.
Lacquer, cellulose nitrate	The Glidden Co.	Cleveland, Ohio
Thinner, cellulose nitrate, dope and lacquer	Arrow Lacquer Corp.	Brooklyn, N.Y.
Enamel, camouflage, quick drying	Cook Paint & Varnish Co.	Kansas City, Mo.
Thinner, cellulose nitrate, dope and lacquer	Barker Chemical Co.	Chicago, Ill.
Lacquer, leather refinishing	United Finish Co.	Peabody, Mass.
Enamel, olive drab, rust inhibiting	Rinshed-Mason Co.	Detroit, Mich.
Enamel, camouflage, quick drying	Andred Brown Co.	Los Angeles, Calif.
Armed Services Medical Procurement Agency, 84 Sands St., Brooklyn, N.Y.:		
Heparin sodium injection with gelatin and dextrose	The Upjohn Co.	Kalamazoo, Mich.
Procaine, hydrochloride with epinephrine cartridge	Neo Quest Chemical Co., Inc.	Philadelphia, Pa.
Sodium iodomethate injection	Schering Corp.	Bloomfield, N.J.
Chicago Chemical Procurement District, 226 W. Jackson Blvd., Chicago 6, Ill.:		
Sodium Hydroxide (50 pc liquor)	Julius Hyman & Co.	Denver 1, Col.
Dallas Chemical Procurement District, 1114 Commerce St., Dallas, Tex.:		
Potassium chlorate	Sinclair & Valentine Co.	New York, N.Y.
New York Quartermaster Procurement Agency, 111 East 16th St., N.Y. 3, N.Y.:		
Compound dishwashing, Type II, soft water	Cowles Chemical Co.	Cleveland, Ohio
Soap, toilet, soft, hard or sea water, 4 oz cake	Allen B. Wrisley Co.	Chicago, Ill.
U.S. Marine Corps, the Quartermaster General, Washington 25, D.C.:		
Dishwashing Compound	The Clarkson Laboratories, Inc.	Philadelphia, Pa.

Many Granted, More Ahead

Over 200 certificates of necessity have been granted to the chemical industry for expansion of production facilities.

Greatest dollar volume of expansion is in production of chlorine and benzene; highest percentage depreciation goes to ethylene dibromide, titanium, uranium oxide, and benzene.

Further certification is expected to fill existing gaps in the list of products receiving rapid write-off.

The imposing table on this and the next two pages shows the 209 certificates of necessity granted to the chemical industry up to July 20. With certain obvious exceptions, conspicuous by their absence, nearly every section of the industry is represented, and the picture is growing clear on just what products loom most important in DPA eyes, on the basis of percentage write-off and dollar volume.

COMPANY	PRODUCT	AMOUNT ELIGIBLE	PER CENT CERTIFIED
ACYCLIC ORGANIC CHEMICALS			
Tennessee Eastman Corp., Longview, Texas	Ethyl Alcohol	$ 5,787,000	50
U. S. Industrial Chemicals, Inc., Baltimore, Md.	Ethyl Alcohol	$ 328,815	50
Standard Oil Co. (An Indiana Corp.), Wood River, Ill.	Alcohols	$ 2,552,000	80
Standard Oil Co. (An Indiana Corp.), Sugar Creek, Mo.	Olefin Concentrate	$ 142,060	80
Ethyl Corp., Baton Rouge, La.	Anti-Knock	$ 175,000	90
Ethyl Corp., Houston, Texas	Anti-Knock	$44,135,000	85
Ethyl Corp., Baton Rouge, La.	Anti-Knock	$ 4,041,000	75
Gulf Oil Corp., Port Arthur, Texas	Ethylene	$15,427,000	80
The Dow Chemical Co., Freeport, Texas	Ethylene	$ 5,600,000	80
Ethyl—Dow Chemical Co., Freeport, Texas	Ethylene Dibromide	$ 8,185,000	100
The Dow Chemical Co., Midland, Mich.	Ethylene Dibromide	$ 70,000	100
The Dow Chemical Co., Midland, Mich.	Ethylene Dibromide	$ 200,000	100
The Dow Chemical Co., Midland, Mich.	Ethylene Dibromide	$ 100,000	100
The Dow Chemical Co., Ludington, Mich.	Bromine	$ 433,500	100
The Dow Chemical Co., Midland, Mich.	Bromine	$ 630,000	100
The Hancock Oil Co. of Calif., Long Beach, Calif.	Ethylene Glycol	$ 4,000,000[1]	60
Crown Central Petroleum Corp., Pasadena, Tex.	Ethylene, Propylene	$ 265,000	70
Harshaw Chemical Co., Gloucester City, N. J.	Glycerine	$ 290,000	50
Dow Corning Corp., Midland, Mich.	Methyl Chloride	$ 820,000	70
The Dow Chemical Co., Pittsburg, Calif.	Methylene Chloride	$ 670,000	70
Dow Chemical Co., Freeport, Texas	Methyl Chloride	$ 62,100	70
Atlas Powder Co., Wilmington, Del.	Sorbitol	$ 1,531,000	70
Mathieson Hydro-Carbon Chemical Corp., Doe Run, Ky.	Iso-Butane	$18,980,095	75
Minnesota Mining & Mfg. Co., Longdon, Minn.	Trifluoroacetic Acid	$ 471,609	85
Celanese Corp., Bishop, Texas	Trioxane & Paraformaldehyde	$ 3,485,535	65
Air Reduction Co., Inc., Louisville, Ky.	Acetylene	$ 103,416	60
Houston Oxygen Co., Houston, Texas	Acetylene (also Oxygen)	$ 903,100	65
Air Reduction Co., Inc., Calvert City, Ky.	Calcium Carbide	$ 4,491,000	60
Thiokol Corp., Trenton, N. J.	Bis(2-chloroethyl) formal	$ 601,000	85
CYCLIC ORGANIC CHEMICALS			
Pan American Refining Co., Texas City, Texas	Benzene	$ 1,100,000	100
Atlas Processing Co., Shreveport, La.	Benzene	$ 2,600,000	95
Standard Oil Co. of Calif., El Segundo, Calif.	Benzene	$14,000,000	85
Sun Oil Co., Marcus Hook, Pa.	Benzene & Toluene	$ 8,380,000	85
Cosden Petroleum Corp., Big Springs, Texas	Benzene	$ 2,950,000	85
Shell Oil Co., Deer Park (Harris County), Texas	Benzene	$10,400,000	85
Aromatics Refining Co., Inc., Baton Rouge, La.	Benzene, Toluene, Xylene, etc.	$11,630,000	85
Roosevelt Oil & Refining Corp., Mount Pleasant, Mich.	Benzene	$ 1,500,000	85
Standard Oil Co. (Indiana), Whiting, Indiana	Benzene	$ 1,170,000	85
Shell Oil Co., Wood River, Ill.	Toluene	$ 150,000	100
Sloss-Sheffield Steel & Iron Co., Birmingham, Ala.	Benzene, Toluene	$ 1,976,200	85
Milwaukee Solvay Coke Co., Milwaukee, Wisc.	Benzene, Toluene	$ 1,200,000	85
Pittsburgh Coke & Chemical Co., Neville Island, Pa.	Benzene, Toluene	$ 6,115,000	85
Semet-Solvay Division, Allied Chemical and Dye Corp., Buffalo, N. Y.	Benzene, Polyethylene	$ 6,940,000	70
Atlantic Refining Co., Philadelphia, Pa.	Benzene, Toluene	$ 5,600,000	75
Humble Oil Refining Co.,	Toluene, Xylene	$ 64,941	100
The Sherwin-Williams Co., Chicago, Ill.	Naphthalene	$ 274,000	55
Quaker Oats Co., Omaha, Neb.	Furfural	$ 3,969,826	60
Monsanto Chemical Co., St. Louis, Mo.	Maleic Anhydride	$ 1,345,000	60
Koppers Co., Inc., Petrolia, Pa.	Resorcinol	$ 617,000	50
Borden Co., Tacoma, Wash.	Resorcinol	$ 490,000	75
The Sherwin-Williams Co., Chicago, Ill.	Refined Para-Cresol	$ 279,150	55
Narmco, Inc., Costa Mesa, Calif.	Phenolic Resins	$ 63,493	75
Monsanto Chemical Co., Texas City, Texas	Styrene Monomer	$ 8,600,000	70
Dow Chemical Co., Freeport, Texas	Styrene	$ 1,610,000	70
Koppers Co., Inc., Kobuta, Pa.	Styrene Monomer	$ 3,691,000	70
Koppers Co., Inc., Kobuta, Pa.	Styrene Monomer	$ 320,267	70
The Dow Chemical Co., Midland, Mich.	Vinyl Toluene	$10,241,000	60
Koppers Co., Inc., Port Arthur, Texas	Ethylbenzene	$ 4,475,355	70
Monsanto Chemical Co., Monsanto, Ill.	Copper-8-quinolinolate	$ 21,250	70
Monsanto Chemical Co., Merrimac Division, Everett, Mass.	Maleic Anhydride	$ 23,800	60

[1] Subject to revision after submission of details.

On the basis of high percentage certification, the government is especially anxious, apparently, to up the output of ethylene dibromide, titanium, uranium oxide, and benzene, toluene, and xylene.

Demand for anti-knock compounds has brought Dow 100% certification for its ethylene dibromide and bromine plants. Biggest bromine dollar value went to Ethyl–Dow's (co-subsidiary of Ethyl and Dow) Freeport dibromide plant. Full write-off for ethylene dibromide, as compared to only 85% for anti-knock plants, is undoubtedly due to the greater long-term potential of such materials as ethyl chloride, sodium, and chlorine involved in tetraethyl lead production.

Titanium's great potential derives from its excellent resistance to corrosion and high temperatures, as well as its low weight-strength ratio. This combination obviously qualifies the metal for jet engine construction, and justifies the government's strong encouragement of titanium expansion.

The obvious extreme importance of uranium oxide indicates some mitigating considerations in the grant of only 90% certification. Apparently the taking over of existing facilities rather than new construction, must have been involved. It is hard to believe that either bromine or titanium is more important than uranium.

Notable is the high percentage granted to various small expansions for commodities where the general percentage is lower. Cases in point are the toluene certificates granted to Shell Oil at Wood River, Ill., ($150,000) and to Humble Oil Refining ($64,941). Such certificates probably indicate bottlenecks the government is anxious to remove.

Dollar Volume: In the case of benzene, not only did bottlenecks have to be removed, but entirely new channels of supply had to be created—from petroleum. As a result, benzene gets both high percentage (85%) and high dollar-volume expansion to supply the insistent demands for styrene, phenol, insecticides, and detergents.

High as benzene is dollar-volume-wise, it is chlorine that runs off with volume honors. No less than 39 certificates have been issued to chlorine producers, (*CIW, April 7, 1951*). High on volume, chlorine is low (50%) on a percentage certification basis. Other materials showing a high volume of expansion with relatively low percentages are sulfur, the short-

age of which has caused diplomatic complications, antibiotics, and ammonia.

Major importance of these materials in the chemical field is sharply underlined by both high expansion volume and low percentage write-off. Since potential use after the emergency period is a major determinant in percentage granted, it is obvious that the lower the percentage, the more civilian potential NPA sees in the industry.

Missing: Conspicuously absent so far are phthalates and phthalic anhydride, phenol, phosphates, and soda ash. But certification isn't over yet. These materials may soon appear on the list, but at least one of them, soda ash, is unlikely to do so. NPA has so far refused to certify soda ash plant expansion.

Solvay is already going ahead on ash expansion at Baton Rouge without benefit of certification. The new plant is designed to relieve the impending shortage of ash that would soon result when no further capacity can be added by cutting back the production of caustic soda from causticizing soda ash with lime. Apparently the government believes that soda ash can, and will, be expanded without encouragement from the accelerated amortization program.

Although a large expansion has been announced for phthalic anhydride (Barrett and Reichhold), no certificates have been issued as yet, and none of significance have been forthcoming for its major precursor, naphthalene. This despite the fact that the country is already importing huge poundages of naphthalene to keep present facilities operating.

In addition, while the NPA has asserted that we will have to have more benzene for phenol in the near future, and Barrett and Reichhold are planning phenol expansions, no certificates for phenol have been issued yet.

As for phosphates, presumably the government feels that the present supply is sufficient at this time to preclude the need for certification of new facilities.

General Picture: Up to May 7, when the last figures were issued giving industry-by-industry breakdown, the chemical industry was third to (1) steel and iron and (2) petroleum refining in the total dollar-volume granted to the basic materials industries. According to NPA, this pattern, clearly indicating the vital importance of the chemical industry to the nation, has not changed since then.

Particularly noteworthy in the in-

COMPANY	PRODUCT	AMOUNT ELIGIBLE	PER CENT CERTIFIED
SULFURIC ACID and SULFUR			
Bethlehem Steel Co., Sparrows Point, Baltimore City, Md.	Sulfuric Acid	$ 4,000,000	70
General Chemical Division, Allied Chemical and Dye Corp., Newark, N. J.	Sulfuric Acid	$ 6,300,000	70
Stauffer Chemical Co., Compton, Calif.	Sulfuric Acid	$ 114,000	70
General Chemical Division, Allied Chemical and Dye Corp., Newell, Pa.	Sulfuric Acid	$ 1,910,000	70
American Smelting and Refining Co., Corpus Christi, Texas	Sulfuric Acid	$ 610,375	70
Garfield Chemical & Mfg. Corp., Garfield, Utah	Sulfuric Acid	$ 3,583,000	70
Garfield Chemical & Mfg. Corp., Salt Lake City, Utah	Sulfuric Acid	$ 2,500,000	80
Stauffer Chemical Co., Richmond, Calif.	Sulfuric Acid	$ 283,500	80
American Smelting and Refining Co., Tacoma, Wash.	Sulfuric Acid	$ 891,739	80
American Smelting and Refining Co., New York, N. Y.	Sulfuric Acid	$ 2,716,000	80
Armour & Co., Bartow, Fla.	Sulfuric Acid	$ 1,975,500	75
Continental Sulphur & Phosphate Corp., Cody, Wyoming	Sulfur	$ 1,850,000	85
CELLULOSE and SYNTHETIC FIBERS			
Rayonier, Inc., Shelton, Wash.	Cellulose	$ 1,412,148	65
Rayonier, Inc., Port Angeles, Wash.	Cellulose	$ 873,610	65
Rayonier, Inc., Hoquiam, Wash.	Cellulose	$ 1,507,980	65
Olin Industries, Inc., New York, N. Y.	Cellulose	$17,439,000	65
Rayonier, Inc., Fernandina, Fla.	Cellulose	$ 2,985,535	65
North American Rayon Co., Childersburg, Ala.	Rayon	$18,759,098	50
Eastern Rayon Mills, Parkersburg, W. Va.	Rayon	$ 9,025,000	50
Chemstrand Corp., Decatur, Ill.	Synthetic Fibers	$25,531,500	50
Chemstrand Corp., Pensacola, Fla.	Nylon	$88,500,000	50
CHLORINE[2]			
Mathieson Chemical Corp., Baltimore, Md.	Chlorine	$ 9,149,960	50
Virginia Smelting Co., West Norfolk, Va.	Chlorine, Zinc Powder	$ 1,285,485	75
Monsanto Chemical Co., Monsanto, Ill.	Chlorine	$ 1,450,000	50
Wyandotte Chemical Corp., Wyandotte, Mich.	Chlorine	$ 760,000	50
Stauffer Chemical Co., Niagara Falls, N. Y.	Chlorine, Carbon Tetrachloride	$ 5,155,000	50
Pennsylvania Salt Mfg. Co., Wyandotte, Mich.	Chlorine	$ 1,380,753	50
Diamond Alkali Co., Deer Park, Pasadena, Texas	Chlorine	$ 5,900,000	50
Pennsylvania Salt Mfg. Co., Calvert City, Ky.	Chlorine	$ 6,500,000	50
Pittsburgh Plate Glass Co., Natrium, W. Va.	Chlorine	$10,200,000	50
Southern Alkali Corp., Lake Charles, La.	Chlorine	$10,080,000	50
Southern Alkali Corp., Corpus Christi, Texas	Chlorine	$ 8,665,000	50
Michigan Chemical Corp., St. Louis, Mich.	Chlorine	$ 9,945,238	50
Pennsylvania Salt Mfg. Co. of Washington, Tacoma, Wash.	Chlorine	$ 445,000	50
Pennsylvania Salt Mfg. Co. of Washington, Portland, Ore.	Chlorine	$ 1,497,598	50
Mathieson Alabama Chemical Corp., McIntosh, Ala.	Chlorine	$ 8,124,900	50
National Distillery Chemical Corp., Ashtabula, Ohio	Chlorine, Sodium	$ 960,000[3]	50
National Distillers Chemical Corp., Ashtabula, Ohio	Chlorine, Sodium	$ 9,600,000[3]	50
Mathieson Hydrocarbon Chemical Corp., Saltsville, Va.	Chlorine	$ 9,149,960	50
The Dow Chemical Co., Freeport, Texas	Chlorine	$34,619,000	50
Allied Chemical & Dye Corp., Hopewell, Va.	Chlorine only	$ 2,150,000	50
Diamond Alkali Co., Painesville, Ohio	Chlorine	$ 2,182,910	50
Hooker Electro-Chemical Co., Niagara Falls, N. Y.	Chlorine	$ 448,000	50
Diamond Alkali Co., Deer Park, Pasadena, Texas	Chlorine	$ 2,264,220	50
Diamond Alkali Co., Deer Park, Pasadena, Texas	Chlorine	$ 3,396,330	50
The Solvay Process Division, Allied Chemical and Dye Corp., Unknown	Chlorine, Sodium	$29,000,000[3]	50
North Carolina Pulp Co., Plymouth, N. C.	Chlorine	$ 1,389,900	50
Southern Ferro Alloys Co., Chattanooga, Tenn.	Chlorine, Sodium	$ 3,250,000[3]	50
The Dow Chemical Co., Pittsburg, Calif.	Chlorine	$ 606,400	50
The Dow Chemical Co., Pittsburg, Calif.	Chlorine	$ 2,333,360	50
Innis, Speiden & Co., Niagara Falls, N. Y.	Chlorine	$ 830,000	50
The Dow Chemical Co., Freeport, Texas	Chlorine, Perchloroethylene	$ 3,141,000	50
Brown Company, Berlin, N. H.	Chlorine	$ 221,500	50
Niagara Alkali Co., Niagara Falls, N. Y.	Chlorine	$ 1,045,088	50
Frontier Chemical Co. of Kansas, Inc., Sedgwick County, Kans.	Chlorine, HCl	$ 1,432,800	50
The Dow Chemical Co., Midland, Mich.	Chlorine	$ 2,600,000	50
National Distillers Chemical Corp., Ashtabula, Ohio	Chlorine, Liquid Sodium	$ 9,656,490	50
Wyandotte Chemical Corp., Wyandotte, Mich.	Chlorine	$21,761,880[3]	50
Arvey Corporation, Memphis, Tenn.	Chlorine	$ 1,678,315	50
Hooker Electrochemical Co., Tacoma, Wash.	Chlorine	$ 2,734,592	50
The Dow Chemical Co., Freeport, Texas	Hydrochloric Acid	$ 4,475,000	70
The Dow Chemical Co., Freeport, Texas	Hydrochloric Acid	$ 3,535,000	70
PHARMACEUTICALS			
Armour & Co., Chicago, Ill.	Adrenocorticotropic Hormone	$11,617,500	55
E. R. Squibb & Sons, New Brunswick, N. J.	Penicillin, Streptomycin	$ 3,472,000	60
Chas. Pfizer & Co., Inc., Groton, Conn.	Penicillin, Streptomycin	$ 8,692,000	65
Chas. Pfizer & Co., Inc., Brooklyn, N. Y.	Penicillin, Streptomycin	$ 890,000	65
Chas. Pfizer & Co., Inc., Terra Haute, Indiana	Penicillin, Streptomycin	$ 475,000	65
American Cyanamid Co., Pearl River, N. Y.	Aureomycin	$ 6,000,000	60
Cutter Laboratories, Berkeley, Calif.	Penicillin	$ 146,988	70
J. T. Baker Chemical Co., Phillipsburg, N. J.	Penicillin	$ 168,000	70
Bristol Laboratories, Inc., East Syracuse, N. Y.	Penicillin	$ 4,345,78	65
Abbot Laboratories, North Chicago, Ill.	Penicillin	$ 1,432,00	60
Heyden Chemical Corp., Princeton, N. J.	Penicillin	$ 3,800,00	60
American Cyanamid Co., New York, N. Y.	Aureomycin	$12,000,00	60
Commercial Solvents Corp.	Penicillin	$ 746,370	65
Miles Laboratories, Inc., Elkhart, Indiana	Citric Acid	$ 2,548,400	50
Chas. Pfizer & Co., Inc., Groton, Conn.	Citric, Oxalic	$ 2,350,000	50

[2] Unless otherwise noted, plants also produce Caustic Soda.
[3] Less amount to be determined subsequently for mercury.

COMPANY	PRODUCT	AMOUNT ELIGIBLE	PER CENT CERTIFIED
OXYGEN			
Air Reduction Co., Inc., Johnstown, Pa.	Liquid Oxygen	$ 862,125	80
Union Carbide & Carbon Corp., East Chicago, Ill.	Liquid Oxygen	$ 7,964,580	55
Burdett Oxygen Co. of Cleveland, Inc., Dayton, Ohio	Oxygen	$ 297,695	55
Union Carbide & Carbon Corp., Ashtabula, Ohio	Liquid Oxygen	$ 4,168,000	65
Air Reduction Co., Inc., Butler, Pa.	Liquid Oxygen, Nitrogen	$ 5,531,252	65
Dye Oxygen Co., Phoenix, Arizona	Oxygen	$ 48,500	70
METALS and METAL COMPOUNDS			
Aluminum Ore Co. (Bauxite, Arkansas Works), Bauxite, Ark.	Alumina	$53,900,000	80
The Harshaw Chemical Co., Elyria, Ohio	Chrome Alumina	$ 78,600	70
C. K. Williams & Co., East St. Louis, Ill.	Yellow Iron Oxide	$ 1,900,200	70
Northwest Magnesite Co., Cape May, N. J.	Magnesite	$ 5,798,979	85
The Standard Lime & Stone Co., Manistee, Mich.	Magnesite	$ 268,858	85
The Dow Chemical Co., Ludington, Mich.	Magnesium Chloride	$ 1,422,000	85
Bethlehem Steel Co., Cornwall, Pa.	Pyrites	$ 77,000	85
Bethlehem Cuba Iron Mines, Morgantown, Banks Cy., Pa.	Pyrites	$34,343,000	85
Bethlehem Cuba Iron Mines, Warwick Township, Chester County, Pa.	Pyrites	$ 4,037,000	85
Dow Corning Corp., Midland, Mich.	Silicon Metal	$ 560,000	75
Rem-Cru Titanium, Inc., Midland, Pa.	Titanium	$ 450,000	75
E. I. DuPont de Nemours & Co., Newport, Del.	Titanium	$ 1,227,000	90
Titanium Metals Corp. of America, Henderson, Nev.	Titanium	$14,162,840	90
Crane Co., Chicago, Ill.	Titanium	$ 162,500	90
Climax Uranium Co., Grand Junction, Colo.	Uranium Oxide	$ 908,194	90
Kaiser Aluminum & Chemical Corp., Baton Rouge, La.	Alumina	$ 3,528,000	80
Reynolds Metals Co., Saline County, Ark.	Alumina, Synthetic Cryolite	$ 12,943	80
AMMONIA			
Allied Chemical & Dye Corp., The Solvay Process Division, Hopewell, Va.	Synthesis Gas	$ 6,000,000	85
Allied Chemical & Dye Corp., The Solvay Process Division, South Point, Ohio	Synthesis Gas	$ 6,030,000	85
Commercial Solvents Corp., Sterlington, La.	Anhydrous Ammonia	$20,458,000	50
Spencer Chemical Co., Vicksburg, Miss.	Anhydrous Ammonia	$13,758,000	50
Mathieson Chemical Corp., Lake Charles, La.	Anhydrous Ammonia	$ 1,388,238	50
Hooker Electro-Chemical Co., Tacoma, Wash.	Anhydrous Ammonia	$ 1,894,700	50
Wyandotte Chemical Corp., Wyandotte, Mich.	Anhydrous Ammonia	$ 2,624,000	50
Diamond Alkali Co., Houston, Texas	Anhydrous Ammonia	$ 1,606,000	50
Diamond Alkali Co., Painesville, Ohio	Hydrogen Chloride	$ 828,900	70
CARBON BLACKS			
Phillips Chemical Co., Near Borger, Texas	Carbon Black	$ 4,668,999	60
General Atlas Carbon Co., Big Spring, Texas	Carbon Black	$ 1,545,050	60
Continental Oil Black Co., Westlake, La.	Carbon Black	$ 1,514,300	60
Cabot Carbon Corp., Ville Platte, La.	Carbon Black	$ 732,028	60
J. M. Huber Corp., Aromex, Texas	Carbon Black	$ 2,211,242	60
Cabot Carbon Co., Bayou Sale, La.	Carbon Black	$ 2,174,380	60
United Carbon Co., Inc., City of Lake Charles, La.	Carbon Black	$ 2,290,000	60
Columbian Carbon Co., E. Dorado, Ark.	Carbon Black	$ 1,670,000	60
General Atlas Carbon Co., Pampa, Texas	Carbon Black	$ 152,181	60
Sid Richardson Carbon Co., Fort Worth, Texas	Carbon Black	$ 2,000,661	60
MISCELLANEOUS			
Buffalo Electro-Chemical Co., Inc., Town of Tonawanda, N. Y.	Hydrogen Peroxide	$ 1,450,000	50
Buffalo Electro-Chemical Co., Inc., Vancouver, Wash.	Hydrogen Peroxide	$ 4,320,000	50
Monsanto Chemical Co., Texas City, Texas	Acrylonitrile, Hydrogen Cyanide	$25,633,000	50
Monsanto Chemical Co., Pocatello, Idaho	Phosphorus	$ 7,450,000	50
Westvaco Chemical Division, Food Machinery and Chemical Corp., Pocatello, Idaho	Phosphorus	$ 9,000,000	50
Victor Chemical Works, Silver Bow, Montana	Phosphorus	$ 9,304,950	50
Pittsburgh Coke & Chemical Co., Neville Island, Pa.	Phosphate Insecticides	$ 450,000	50
Sloss-Sheffield Steel & Iron Co., Birmingham, Ala.	Ammonium Sulfate	$ 150,000	85
Diamond Alkali Co., Painesville, Ohio	Bichromate of Soda	$ 311,236	50
Filtrol Corp., Salt Lake City, Utah	Catalysts	$ 725,406	85
Filtrol Corp., Salt Lake City, Utah	Catalysts	$ 1,979,703	85
American Cyanamid Co., Michigan City, Indiana	Synthetic Fluid, Cracking Catalyst	$ 5,077,035	85
Abbot Laboratories, North Chicago, Ill.	Water Purification Tablets	$ 166,645	75
Zenith Plastics Co., Gardena, Calif.	Plastics	$ 106,328	80
Dow Chemical Corp., Unknown	Cracking Catalyst	$ 4,301,512	85
Dow Chemical Corp., Unknown	Cracking Catalyst	$ 858,238	50
International Minerals & Chemicals Corp., Mulberry, Fla.	Chemicals	$ 6,600,000	75
Pennsylvania Salt Mfg. Co., Calvert City, Ky.	Hydrofluoric Acid	$ 341,088	75
National Gypsum Co., Bellefonte, Pa.	Pebble Quick Lime	$ 1,269,537	75
Southern Alkali Corp., Barberton, Ohio	Pigment	$11,188,000	70
Potash Co. of America, Dumas, Texas	Potassium Sulphate Hydrochloric Acid	$ 783,000	50
The Harshaw Chemical Co., Elyria, Ohio	Synthetic Optical Crystal	$ 108,000	80
Union Carbide & Carbon Corp., Institute, W. Va.	Insecticide	$ 5,874,400	50
Pittsburgh Plate Glass Co., Barberton, Ohio	Silica	$ 1,545,801	70
The Standard Lime & Stone Co., Pleasant Gap, Pa.	Pebble Lime	$ 1,550,800	75

[1] Less amount to be determined subsequently for mercury.

dustry breakdown is the low (52.1%) average certification granted the chemical industry. Obviously the future of the chemical industry is considered extremely bright by officials in charge of assessing post-emergency potential of the various expansions.

Not-so-happy figures indicate that while the chemical industry is right up top in number of certificates granted, it is also high on the number turned down. Apparently chemical men have been a little too optimistic about the government's need for their products and—in the government's view—too anxious to utilize the advantages of rapid depreciation.

Developments are still cooking in Washington, some involving the noted absentees, but there seems little reason to expect that the over-all picture will change appreciably.

"Hot Lab" Code

The New England Deaconess Hospital, concerned with radiological safety problems, has pioneered an effective building code in designing the isotope section of its new Cancer Research Institute. Municipal building departments throughout the nation could well afford to sit up and take notice; official planning to govern construction of radioisotope facilities is still virtually non-existent.

Shields Warren, director of the Institute, gets most of the credit for the new hot lab building code. Warren is no novice at this game. A noted radiologist, he stands high in the ranks of the Atomic Energy Commission. His ideas, incorporated into the recently dedicated $575,000 Institute, are setting the national pace for hot lab design.

Briefly, the Institute is set up as follows. Radioactive materials are received and processed behind 12-inch concrete walls in the building's basement. This location takes a sizable load off the building supports and is far removed from sensitive areas like the photographic darkrooms.

Two sections comprise the processing area: the preparation and issue compartments. Concentrated isotopes, arriving from the AEC, are delivered to the preparation compartment where they may be stored in a concrete vault equipped with a thick lead door. Isotopes are subsequently diluted to proper strengths for experimental use.

Diluted isotopes are then placed in "pass through" chambers, set into the concrete wall and protected at each end by self-closing lead doors. These "pass through" chambers communi-

cate with the issue compartment, are large enough to serve as storage space for radioactive solutions. Personnel in the issue compartment remove isotopic solutions from the "pass through" chambers and dispense them as required. In this way, all but specially qualified personnel are kept out of the receiving room.

Waste disposal, one of the biggest headaches of a radioisotope program, is no problem to the Institute. Hot laboratories are adjacent to main sewage lines. Plumbing waste from the laboratory is run into a 25-gallon holding tank and diluted before emptying into the sewer. Tests have shown that this system rules out contamination, even at points close to the building.

At earlier "atomic" installations it has often been necessary to bury wastes in the earth or carry them out to sea—either of which is costly and inconvenient.

Safe All Around: An added safety measure is the separation of the lab hood exhaust lines from other exhaust outlets. Although this arrangement would be indispensable for decontamination, it really comes under the heading of "double sure": Isotopes used at the Institute are not volatile, not likely to get into the exhaust system.

Laboratory floors illustrate the extreme precaution taken to avoid disastrous contamination of building materials. Made of concrete, the floors are covered with two layers of tarred felt paper and a surface of asphalt tile. In the event of spillage, the felt and tile could be stripped off leaving the floor uncontaminated.

Although Warren's building code was primarily intended for a medical research installation, it has much to offer to industry as well. With industrial use of isotopic tracers growing by leaps and bounds, Warren's contribution is conspicuous as a forward step in a neglected direction.

SAMTER AND HERELD: Panning profits from neglected literature.

Policy: Avoid the Obvious

It was anniversary time Wednesday for the Chemo Puro Manufacturing Corp., which completed its tenth year in business with record 12-month sales of close to $2 million.

Chemo Puro's primary production during these years has been batch lots of fine chemicals and intermediates for pharmaceutical and related fields. Future expansion is planned into production of ton lots of 99% plus pure chemicals, if the right product—*i.e.*, one with a market—can be found.

While certainly not a chemical giant, the company is definitely one of the bigger little companies—quite a record for a firm which started out a decade ago with only $5,000 capital.

Keys to Chemo Puro's success (in addition, of course, to such matters as quality control) include: (1) concentration on chemicals not already producted by larger firms, (2) reading of new and old original literature to find useful though neglected chemicals or new ones which may soon find commercial use, and (3) a strong and integrated program combining trade advertising and direct mail, even though the budget has been limited.

Chemo Puro is probably unusual because of the youth of its major executives. All but one are in their twenties; the exception, Executive Vice President P. C. Hereld, is just over the thirty mark.

Specialties Coming Up: One of the products for which Chemo Puro hopes a rosy future is salicylamide, known for many years but by-passed by its acetylated cousin, aspirin. In delving into original literature, researchers uncovered a 1936 test reporting that salicylamide was superior to other salicylates. Starting from this, Chemo Puro began promotion of the item. Just in the last month, several pharmaceutical firms have put out compounds with salicylamide rather than aspirin as the pain relieving substance.

While production of salicylamide is now peanuts compared to aspirin, output will greatly increase if these new formulations "catch," and Plant Manager Werner Samter will have his hands full.

Choline and other lipotropes are another example of off-the-beaten-path production. The company was already producing acetylcholine chloride at the time choline's membership in the B vitamin complex was reported. Because of this report, Chemo Puro began production of choline chloride and choline dihydrogen citrate, and later discovered that

Current List of DPA-Certified Chemical Facilities

COMPANY	LOCATION OF FACILITY	PRODUCT	AMOUNT ELIGIBLE	PERCENT
Brown Co.	Berlin, N. H.	Alpha cellulose	$ 450,000	60
Bethlehem Limestone Corp.	Hanover, Pa.	Calcite, dolomite	142,000	75
Philadelphia Quartz Co.	Chester, Pa.	Sodium silicates	1,110,850	65
Davison Chemical Corp.	Curtis Bay, Md.	Sodium silicate	112,350	65
Champion Paper & Fibre Co.	Canton, S. C.	Bleached chemical pulp	1,047,710	65
Mississippi Chemical Co.	Yazoo County, Miss.	Anhydrous ammonia	5,704,707	50
Dow Chemical Co.	Midland, Mich.	Chlorine	9,505,000	50
Defense Project, Inc.	Maple Grove, Ohio	Dead-burned dolomite	3,500,000	75
Dow Chemical Co.	Freeport, Tex.	Ammonia	4,316,800	50
Davison Chem. Corp.	Unknown (probably Gulf Coast)	Petroleum cracking catalyst	4,301,512	85
Davison Chemical Corp.	do.	do.	858,238	50
Shell Chemical Corp.	Dominguez, Calif.	Anhydrous ammonia	6,789,000	50

• Certificates issued during the week July 13-20, included in the summary, pps. 11, 12, 13, this issue.

choline bitartrate is a more concentrated and less hygroscopic choline compound—thus better suited for drug use.

From choline, it was an easy step to such other lipotropes as betaine and inositol. Both choline and betaine, in addition to present pharmaceutical use, are finding increased favor in animal feed supplements.

Of course, not every development comes off successfully—even those which seemed destined for success. As its first tonnage chemical, the company developed calcium levulinate to substitute for calcium gluconate. (Final use: calcium source in diet.) Price of the levulinate was lowered to competitive levels through increased production and sales were increasing. Then Chemo Puro's supplier of levulinic acid went out of the market, and there went the sales. Company researchers are now attempting to get the price of synthetic levulinic down to competitive levels.

Research plays an important part in company activities, though the costs as percentage of gross sales are not unusual for the pharmaceutical-fine chemical field. Up to about a year ago, the percentage figure was 5%, though recent sales spurts have lowered it temporarily to about 3%.

Sales Methods: The country is covered by an 8-man staff; no jobbers or distributors are used. Six salesmen work out of the home office in Long Island City, one is on the West Coast and one has charge of the South. Among them they manage to keep the 40-odd factory workers busy.

Pinpointed promotion is the keynote of Chemo Puro's selling. Publicity on standard items is directed to purchasing agents, while a heavy new-chemical promotion goes to research directors. Technical data sheets include suggested formulations for proprietary compounds.

At present, the great majority of sales are domestic, though export markets made up a heavy percentage during the first years of company business. During the war, the export market to South America and other countries was an easy one for a small company to enter.

Present export markets in such countries as England, France and Italy are virtually non-existent, though Chemo Puro hopes to expand sales in such areas as Africa.

German Roots: The company was founded in 1941 by Hereld and Dr. Hugo Bamberger, in whose German factory Hereld had served an apprenticeship.*

Both men had left Germany in 1939, Hereld came directly to the U.S. and Bamberger went to Belgium, where he owned a factory. He arrived in the U.S. in 1941. At this time, the two men pooled resources—the total: $5,000—and started their company in downtown New York.

"I don't know how we made it through that year," Hereld recalls now. When they felt the need of expansion capital after the first year, they found an "angel" in a friend of both their families.

This man, Martin Adler, is now principal owner of the corporation and has served as president of the firm since Dr. Bamberger's death in 1949.

Future Expansion: To meet expected demands on both the foreign and domestic markets, Chemo Puro plans new facilities to supplement its present Long Island plant. The new unit will probably be located in Connecticut. Present building will be kept for research, storage and shipping space.

"When we first moved to Long Island City," Hereld recalls, "we had our facilities near the Pepsi Cola bottling plant. We used to tell visitors we had a pipeline so we could take care of our lunch time needs. Now we're located next to Guinness', and, of course, we have another pipeline."

There's little doubt that Hereld will get kidded if the Connecticut plant happens to turn up next to a distillery.

It's also a safe—and more serious—bet that Chemo Puro, in its next 10 years, will well exceed this year's $2 million sales record.

EXPANSION . . . .

Durez Plastics: New plant for doubling phenol capacity (*CW, July 28*) will cost $6,371,333. A site has not been definitely decided on, but officials say it will probably be located outside of New York state. Selection of the site will be speeded, construction will start as soon as possible. Operation should begin in approximately one year.

•

Shell Chemical: Construction on the new synthetic ammonia plant (*CW, July 28*) will get underway this year, be completed late in 1952. Output will be principally for fertilizer, but some will be used for munitions, nitric acid, commercial explosives, paper pulp and other uses.

•

Diamond Alkali: The silicate of soda facilities at Dallas, Tex., will be enlarged at a cost of several hundred thousand dollars. New capacity is expected early next year, will help meet increased demands of the detergent, soap, textile, adhesive and silica gel catalyst industries.

•

Alcoa: New reduction plant, part of the government's second-round aluminum expansion, will boost capacity by 85,000 tons a year. No definite decision on plant site has been made; several sites within 60 mi. of Waco, Tex., are being considered.

•

Spencer Chemical: The $14 million anhydrous ammonia plant near Vicksburg, Miss., (*CW, July 28*) is scheduled for completion within two years. Partial production, however, is expected to begin in 18 to 20 months. About 50% of the output will be converted to agricultural nitrogen, most of the remainder will go to the synthetic fiber industry.

KEY CHANGES . .

Ben S. Smith: From assistant personnel director to director of industrial relations, Lion Oil Co.

Manson Benedict: To chief of operations analysis, Atomic Energy Commission.

Charles W. Bowden: To chemical industry manager, Brown Instruments Division, Minneapolis-Honeywell Regulator Co.

Howard K. Nason: From assistant to the vice president in charge of research, development, and patents, to director of research, Organic Chemicals Division, Monsanto Chemical Co.

Charles F. Eck: From project leader, process engineering department, to assistant director of process engineering, Texas Division, Monsanto Chemical Co.

Robert M. Aude: To production superintendent, Addyston Ohio plant, Monsanto Chemical Co.

Gordon P. Whitcomb: To assistant personnel director, American Cyanamid Co.

Clyde C. Ruddick: To assistant safety director, Pittsburgh Plate Glass Co.

* On graduation from school, Hereld literally flipped a coin to see whether he would serve an apprenticeship in chemical or plywood industries. Chemistry won.

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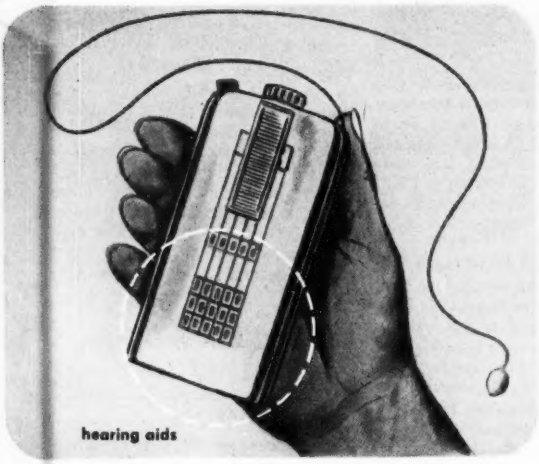

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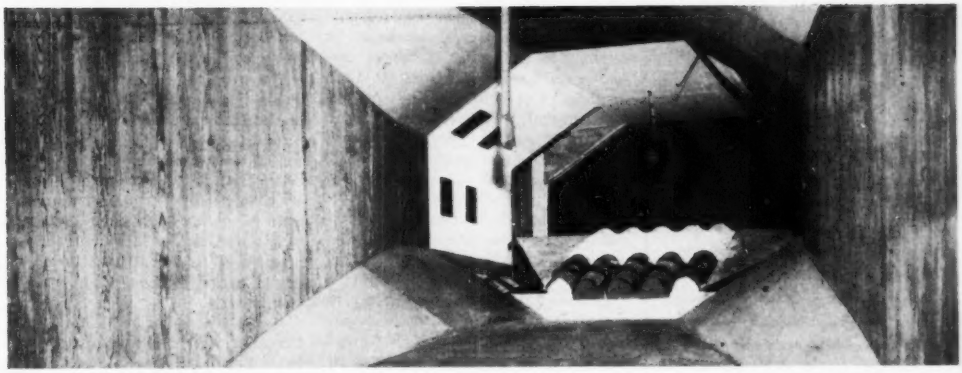
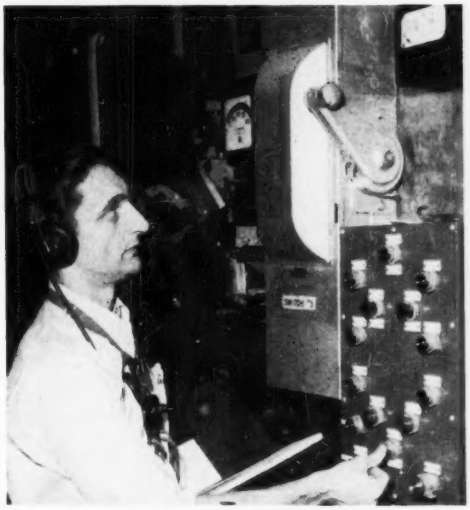


UNIVERSITY OF DETROIT'S wind tunnel, site of the 3M hurricane tests. Simulated roof section is seen at far end.



ENGINEER MANS CONTROLS. Wind velocity was raised in stages to a peak fluctuating between 125 and 133 mph.

CLOSE-UP OF ROOF SECTION shows safety wires. Entire set-up was designed and installed by the 3M Company.

Big Wind Tests Adhesive Grip

It's not often that product development men are called upon to conjure up a hurricane. But that's exactly what engineers of the Minnesota Mining & Manufacturing Company had to do to check the performance of a new 3M roof sealing material. The product is slated for service as an adhesive for roof tile in hurricane areas.

There wasn't a hurricane in sight on the day of the test, so the 3M people did the next best thing: They repaired to the wind tunnel at the University of Detroit's Department of Aeronautical Engineering.

An inclined plane was installed in the tunnel test section at a slope of about 20 degrees into the wind. The original plans called for a slope of 30 degrees. But a preliminary run showed that the blocking effect of the roof plane at this angle limited maximum velocity to 100 mph over the peak of the section. Dropping the slope 10 degrees permitted a sizable wind velocity increase.

Roof tile was sealed on the plane and safety wires looped loosely over the entire setup to prevent loosened tiles from blowing downstream. Safety wires were merely a precaution, not intended to prevent the tiles from raising up off the roof.

Maximum wind velocity in the final test run varied between 125 and 133 mph. Fluctuations were the result of flow disturbances caused by the simulated roof section in the otherwise unimpeded tunnel.

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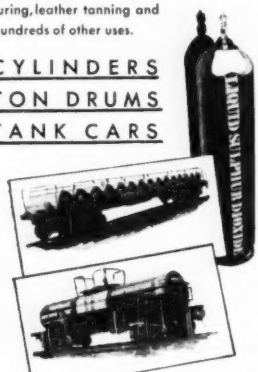

For further information, wire, phone or write the Tennessee Corp., Grant Bldg., Atlanta.

TENNESSEE TC CORPORATION
619 Grant Building, Atlanta, Ga

Custom Venture

Custom Chemical Laboratories, a new Chicago fine chemical producer, is hitching its fortunes to a line of custom-synthesized biochemical and medicinal products.

At present, the firm's stock in trade consists of methyl, ethyl and propyl esters of crotonic acid. A series of higher esters, both saturated and unsaturated, is now on the docket. N-Nitroso - beta - methylamino - isobutyl methyl ketone, an intermediate in the preparation of diazomethane, is also available.

Diazomethane, used extensively in organic synthesis and steroid work, readily converts acids to their methyl esters, alcohols and phenols to methyl ethers. A quantitative reagent, it also offers a convenient method of introducing a carbon atom into an organic ring structure.

Organized in a modest way by Joseph B. Jerome and O. K. Benca, both former college professors, Custom Chemical is now expanding its list of fine chemical wares. Recent additions include para-toluic acid, dithizone, 2-methyl-valeric acid, ninhydrin, 1,3-diketohydrindene, and ethyl ethoxymethylenemalonate. Future plans include many other hard-to-get research items.

•

Completion of $250,000's worth of new research laboratories heralds a stepped-up Du Pont rubber research program. Neoprene will occupy a prime position in research aimed at the development of new latex-based products.

A highly promising facet of the program is concerned with the pioneering of a new high-wet strength paper made by adding neoprene to the beater stock. Result is a strong, water-resistant, neoprene-bound material that looks good in many commercial applications. Waterproof tarpaulins, high-strength printing paper, artificial leather, multiwall bags, filter paper, wall tile backing, and carton liners are a few.

•

Research Dollars: Minnesota Mining and Manufacturing Co. has made a $2,500 grant-in-aid for students engaged in fluorochemical research at the University of Colorado.

•

Amine Analysis: Dimethylamine may be determined in crude liquors containing ammonia, methylamine, and trimethylamine by treatment with nitrous acid. Latter destroys the ammonia and most of the methylamine, converts dimethylamine to the nitrosamine; trimethylamine is unaffected. Dimethylamine is finally determined by polarographic analysis according to Du Pont researchers.

•

Faster Delivery: Abbott Laboratories of North Chicago, Ill., has just acquired facilities at Oak Ridge, Tenn., for the production of radioactive drugs from AEC isotopes. Abbott has been supplying tagged compounds from North Chicago since 1946. The new Oak Ridge facilities will cut down time in transit and extend the useful period of many short half-life compounds.

•

Grignard Aid: Dimethoxy tetraethylene glycol is once more available from Ansul Chemical Co., Marinette, Wis. A selective solvent, miscible with water and organic fluids, the compound may be used to purify gases like acetylene and as a medium for Grignard and sodium condensation reactions. The material also looks good as an additive to reduce the autoignition temperature of hydrocarbon diesel fuels.

•

Cotton Quest: U. S. Department of Agriculture is embarking on a program of research designed to improve flameproofing of cotton fabrics. One interesting phase of the work deals with chemical treatment of cellulose to produce a modified fiber with superior flame-resistance. Army Quartermaster Corps sponsors the project, now under way at the Southern Regional Research Laboratory.

•

Fine Fiber: Glass Fibers, Inc., Toledo, O., reports production of a new glass fiber said to be more than three times finer than comparable commercial products. Exact dimensions of the new fiber are still secret, but potential uses are obvious; filter paper and electrical insulation should account for a good share of output.

The Ohio firm holds an exclusive patent on the manufacturing process. Total current production is earmarked for the armed forces; the Navy apparently has thought enough of the material to place a sizable contract order. Industry will get a look by late fall or early 1952. At that time, the company hopes to have a lot more applicational data.

•

High Purity: Cyanoacetamide of 99% purity is now available from Kay-Fries Chemicals. Compound is unique in that it acts both as a nitrile and amide. Uses: Intermediate in synthesis of drugs and special resins.

A MESSAGE TO AMERICAN INDUSTRY

"This is more than a shortage . . . this is an emergency.

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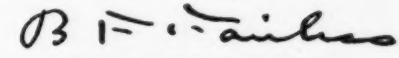
"The fact we have to face today is that steel mills are operating on a hand-to-mouth basis as far as scrap is concerned. Some mills are working on only a two-day supply of scrap. We already have had to shut down steel-making furnaces for lack of scrap.

"That's why we are asking you to strain every effort to get more scrap out of your plants and yards and on its way to the mills . . . to search out the scrap that doesn't come to market in normal times. You'll find this "dormant" scrap in obsolete equipment, tools and machinery that you haven't used for years . . . overlooked in your storage sheds . . . or rusting away in a junk pile in some forgotten corner. It's there. Turn it in at once—*so we can turn out the steel you need.* We can't do it without your help."



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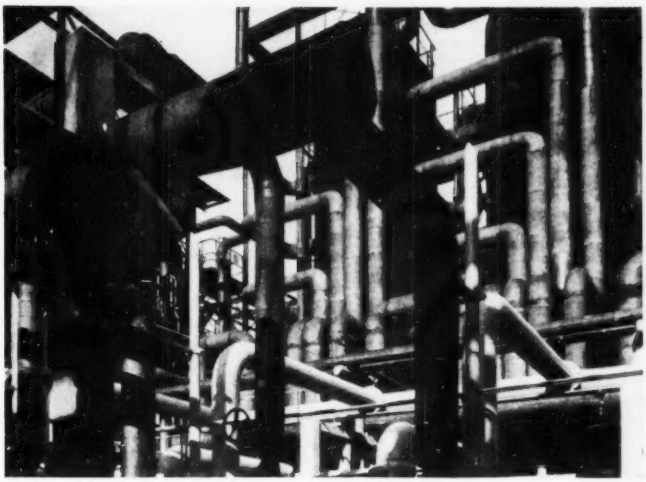

CHEMICAL PLANTS: Complexity of equipment, a deterrent to standardization.

Push for Standards

First chemical industry standard, for stainless steel pipe, will be adopted soon.

Not the only accomplishment of the first year's operation of the Chemical Industry Correlating Committee, seven other standards are now in the mill.

Standardization is at long last entering the chemical industry. The American Standard for stainless steel pipe (ASAB 3619, Schedule 5S) now being processed by the American Standards Association is a move that will be welcomed by design and production engineers everywhere. Thanks for the stroke should be addressed to the Chemical Industry Correlating Committee* (CICC) of the ASA.

The very competitive nature of the chemical industry and its multiplicity of products make it very difficult to set up standards. Its rapidly changing technology and the tremendous importance of impurities, either in corrosion prevention or in their catalytic effect have so far negated efforts toward standardization. Even now the CICC is engaged only in standardization of equipment which the industry purchases, not in standardizing its chemical products.

The Correlating Committee had its genesis in the fall of 1949 at an informal meeting of a small group of representatives of chemical companies and pressure tubing manufacturers in New York. Purpose of the meeting was to explore the possibility of establishing a standard for light-weight stainless steel pipe. For, despite a good demand for the tubing, no two chemical companies were in agreement on purchase specifications.

Complete agreement on a standard was reached by the group in a short time. But then the question was where to go next? Because the agreement was reached by an informal group, it could not be published or sponsored as an American Standard. A committee with the formal backing of the industry was required. This was promptly provided by the Manufacturing Chemists' Association and the Correlating Committee came into being on May 5, 1950.

More to Come: The stainless steel pipe standard is the first to be completed. But the Committee, headed by J. G. Henderson of Carbide & Carbon Chemicals Co., is plunging ahead. Four subcommittees are now functioning. They are: (1) Stainless Steel Pipe and Fittings; (2) Stainless Steel Analyses; (3) Valves and Fittings for Hazardous Services; (4) Unfired Pressure Vessels.

The subcommittee on Stainless Steel Pipe and Fittings came up with the first standard. And this active group is already moving into new fields. Next on the agenda: A study of thin-wall pipe fabricated from other corrosion resistant materials.

Correlation: The allowable ranges of chromium and nickel in standard stainless steel grades are too broad, according to the Committee. This has led to the confusing practice of each company developing its own specifications by modifying standard grades. Complicated deliveries and inability of the steel companies to warehouse the varied inventories has been the result. The subcommittee on Stainless Steel Analyses will try to correlate the stainless steel requirements, by composition, of the various companies. Additions to ASTM standards will be recommended. Ultimately it is hoped that appropriate American Standards can also be used.

Designs, thicknesses, flange facings and drilling templates of valves of the so-called "ammonia-type" which are used to handle liquids and gases under pressure, vary from manufacturer to manufacturer. Originally developed for refrigeration service, this type of valve is today handling such gases as ammonia, sulfur dioxide and chlorine. The aim: An American Standard.

Too Stringent? There are some within the chemical industry who feel that the standard ASME unfired pressure vessel code is unbalanced for the chemical industry, too severe in some respects and not severe enough in others. An investigation is to be made and a report is to be submitted to CICC. This will be a first step towards possible revision of the well-

* Participants: American Institute of Chemical Engineers; American Petroleum Institute, American Society of Mechanical Engineers; American Society for Testing Materials; Compressed Gas Association; Manufacturing Chemists' Association; Synthetic Organic Chemical Manufacturers Association.

CICC PROJECTS UNDER WAY

1. Corrosion-resistant flanged valves, flanges, and flanged fittings.
2. Chemical industry recommendations for clarification of ASME Boiler Code, Unfired Pressure Vessels Section.
3. Valve and fittings for use with liquids and gases under pressure, such as sulfur dioxide, chlorine, and ammonia.
4. Stainless steel analyses.
5. Storage and handling of anhydrous ammonia and ammonia solutions.
6. Code for pressure piping.
7. Clarification and designation of surface qualities of finished mill products.

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established ASME Boiler Code.

Although CICC has operated for just over one year, one standard is well on the way to adoption. More will undoubtedly eventuate from the specific studies noted in the accompanying table. In any event the chemical industry has taken the first long step towards standardization with its attendant savings.

Back to Coal

Establishment of a new 85,000 ton-a-year aluminum smelting plant by Aluminum Co. of America south of Waco, Texas, is of great importance. But the greatest significance lies in the choice of energy supply, a sub-bituminous coal—in Texas. Coal is used as an energy source in many locations but a major advantage of a Texas location has heretofore been in availability of low cost natural gas either for heating or electrical power generation.

Success and Failure: The cost of power spells the difference between success and failure of an aluminum smelter because of the huge requirements for low-cost electrical power.

Natural gas is still cheapest in Texas. But Alcoa apparently has decided that the ballooning costs of natural gas will soon outrun the cost of power generated from low-cost strip-mined sub-bituminous coal—even in Texas.

Relocation: Decisions like this mean one thing: Industries dependent upon fuel-derived energy must again consider many other lignite-rich areas of the country; such as Colorado, Wyoming and Utah, as possible plant sites. Black diamonds still have value.

Time Delay Relay

Liquid silicones are the basis of a new type of time delay timer which is being produced by Heinemann Electric Co. Instead of the fixed solid core of conventional relays, the new relay has a sealed tube which extends through and below the coil.

The tube is filled with a viscosity stable liquid silicone which holds a movable iron core. When the coil is energized the movable core is drawn into the magnetic field. But the rate of movement is impeded and controlled by the viscosity of the silicone to introduce a precise time delay. Magnetic flux increases as the core moves towards the pole piece at the top of the tube at which point the relay operates.

Units to carry loads as high as 10 amperes with timings up to four minutes are being manufactured.

Down and Out

TIME IS SAVED in conveying absorbent clay from filters to settling basin at Marcus Hook, Del. plant of Sun Oil Co. by use of a Schutte & Koerting Eductor. The unit is mounted on a movable platform equipped with a feed hopper for the eductor. The entire assembly can be moved under any plant unit from which clay is to be removed.

•

Oxygen: Union Oil Co. of Calif. has patented (USP 2,548,192) an extension of its Hypersorption process to the separation of the oxygen and nitrogen of air. The adsorbent (activated charcoal, activated bauxite, activated alumina or silica gel) is cooled and contacted countercurrently with air. Movement of the adsorbent down the column gives a gradual increase in the concentration of nitrogen in the exit gas stream. High concentration oxygen is desorbed by heat.

•

Shale Oil: The Ljungstrom process for recovering shale oil, by heating with electricity in situ, formerly used in Sweden, has been discontinued. Reason: an insufficient electrical power supply not technologic or economic impracticability. Next on the program is an attempt to gasify the hydrocarbon content of the shale with oxygen.

•

Condensate Return Unit: Compactly designed to occupy a minimum of floor space, Roth's new vertical Condensate return units, are versatile for applications up to 2 million Btu-hr at 20 psi. New vertical design is intended for installations where return piping is close to floor level.

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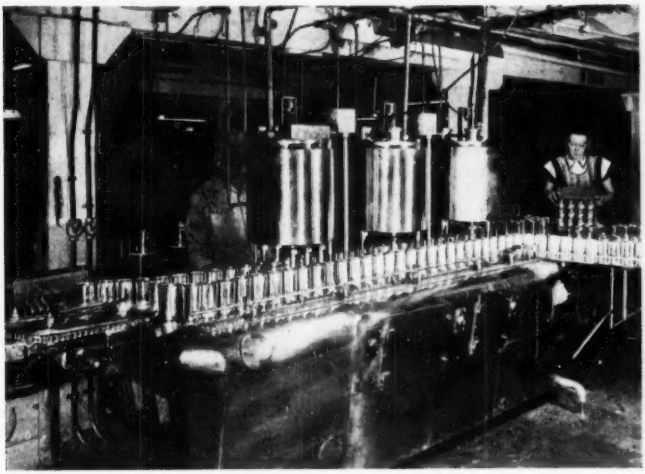

AEROSOL LINE: Some big names fill their own.

Home-Canned Aerosols

Some large specialties makers—Boyle-Midway is the latest—are installing their own aerosol filling capacity.

Whether that's cheaper than having products filled by a private label packer must be decided on an individual basis.

But there's still plenty of contract filling. Witness: Stalfort (Baltimore) has just gone into the business in a big way.

The contract filler has been a key figure in the low-pressure aerosol industry since its beginning five or six years ago. A specialties manufacturer eager to add push-button appeal to his product, usually went to one of these filling experts, had his formula adapted to the new dispensing method and paid a fee for each can produced.

Now the aerosol operations of some specialties makers apparently are sufficiently large or unique for them to install their own filling plants. Boyle-Midway, one of the largest factors in the household chemicals field, has just recently put in its own capacity in Chicago after a number of years of doing busines with contract fillers.

Revlon Products, a big name in cosmetics, is filling insecticidal aerosols for the Army, has an aerosol foam shampoo, Snow Creme, on the shelf. And Carter Products, another company with established drug store outlets (Carter's Pills), fills its own Rise Shaving Cream.

Been Done Before: These are not the first companies to fill and sell their own products. Bridgeport Brass, Bostwick Laboratories, Knapp-Monarch, Chase Products and Eston Chemicals, for example, fill products under their own labels. But for some of these companies, insecticides (and the other specialties added later) were something new or not their primary interest. Others were in the specialties business, but not on as big a scale as Boyle-Midway. And some of them fill for others as well as for themselves, are contract fillers.

A few exceptions notwithstanding, it was largely through private label filling that the aerosol industry experienced its greatest boom. The contract or custom filler*—George Barr, Aeropak, Regal Chemical, Continental Filling, Fluid Chemical and Connecticut Chemical Research (of which Bostwick is a selling subsidiary) are some of them—profits most when his equipment is in constant use. Hence such packers, seeking new customers and other products to counterbalance the seasonal lull experienced with insecticides, spread the aerosol idea to air deodorants, waxes, paints, suntan preparations, lacquers, foam products, etc., and introduced many manufacturers to the new dispenser.

Specialties companies found it quicker and cheaper to get into the aerosol business by this route. It is difficult to say at what point the packer's fee (generally 5¢ a can) is more expensive than the capital investment and operating cost of a filling line. Such a cost analysis must be made on an individual basis, must take into consideration such factors as type of product or products, nature of the operation, gas loss, and product loss as well as labor, overhead and amortization.

Units may vary from 5 to 90 per minute in filling speed, range from manual to completely automatic, can be single-line, double-line, continuous, intermittent. A quantity run of a single product is best, for there is less down time for changeover; this obviously favors custom filling. Yet for some companies, operating at a 5 per minute rate may be more economical than having a product custom filled. As for product, gas loss is greater with foams than with true aerosols (as an insecticide, for example), but the product is less costly and this more or less compensates. Moreover, the investment for a foam product is less than that for a conventional aerosol.

The recent converts to self-filling undoubtedly have or can secure sufficient volume to make their investment a profitable one. Of them, Revlon is a special case. Interested in the cosmetic applications of aerosols, it secured part of an Army bid for two million allethrin aerosols. This keeps its equipment busy, gives it the chance to improve its knowledge of aerosol filling. Not completely satisfied with the formulation of Snow Creme, test marketed last year, it is still working on the product, eventually expects to go national with it and other products still in the developmental stage.

Still a Key: This doesn't mean that the contract or custom filler is going to fade from the picture. There are probably few specialties companies with the volume business Boyle-Midway boasts, or the distributional set-up (and the unique product) of Carter. Aerosols have far from reached their potential volume, and private label fillers—still responsible for most aerosol production—will undoubtedly

* In custom filling, packer supplies all materials—ingredients for product formula, cans, valves and propellent—, fills and ships to customer. In contract filling, he only fills and ships; customer supplies all materials.

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The latest evidence that there is enough business for at least one more filler is the formation of Stalfort Pressure-Pak by John C. Stalfort & Sons, Baltimore private label manufacturer of waxes, cleaners and polishes. With its contacts in this type of business, custom loading is a natural. The newly-formed company has a loading capacity of over 30,000 units a day, is packing insecticides, deodorants, paints, shampoos, shaving cream, etc.

Pattern for Success

Conservative policies have paid off for Mac's Super Gloss Co., Los Angeles automotive chemical firm, as sales have grown from $9,000 in 1931 to a gross of over $2 million this year. Jobber and distributor service is the keystone of its successful merchandising program.

Best known for its catchy slogan, "Don't Wax It! Mac's It," that launched its glaze in 1940, Mac's began in the backyard of its founder president, Bob MacIsaac. Today the more than 20 products—ranging from a silicone glaze to radiator stop leak—start out to 4,000 jobbing outlets from a modern 27,000 sq. ft. factory. Indication of the operation's efficiency: All cases are pallet-loaded, cross the country by truck.

Its growth conservative compared with some zooming polish companies, Mac's Super Gloss observes long-term policies, building solid foundations for a profit-making business. Ask Mac about his principles and he'll tell you this: Test and prove products before you market them—give fair margins to distributors and dealers—make a small profit per unit for yourself—and most important of all, give a lot of "missionary service" to jobbers and distributors.

Mac's missionary service includes training jobber and oil company salesmen to sell polish, keeping more than 50 salesmen in the field. Included, too, is a short lesson on where to stand for best polishing-arm leverage. His national advertising program aids in sales, includes color pages in such magazines as the *Saturday Evening Post*.

Polish Pushing: The first Mac's Polish was born because the Crown Auto Laundry in Pasadena that MacIsaac managed had a polish rack. Mac found the right formula and went into the business part time. When the laundry lost $2,500 in 1931 and the polish—largely peddled from the back of a sedan to Pasadena's Colorado St. used car dealers—netted a neat $3,000, Mac stuck to polish.

BOB MacISAAC: Sell polish with missionary service.

The first salesman, neighbor Dave Goodman, is still selling for Mac's Super Gloss. The backyard manufacturing assistant, Ray Gallagher, superintends operations in today's factory.

First retail outlets for Mac's Polish were southern California service stations of major oil companies. To break into their entire western operations, Mac drove to San Francisco headquarters, there polished oil officials' autos himself. Oil companies on the string, top automotive distributors tied in, too. End result: National Automotive Distributors Association warehouse distribution.

Sales Leader: The Mac's It Kit containing special cleaner and Super Glaze stands first in company sales. Biggest selling point is its resin content which the company claims gives a harder finish, stands up better (m.p. 238 F) and is easier to apply than other polish bases.

The principle of thorough testing and proving new products kept the company out of the silicone polish field until May, 1950. Determined not to market a polish that would streak like some early silicones or fall prey to detergent car washes, Mac and his staff experimented a year before launching their Speed Glaze. It now threatens the kit for No. 1 sales position.

Two other automotive chemical products make up "Mac's Big Four" in sales: No. 13, a rust preventive, and Mac's Stop Leak.

"No. 13—Unlucky for Rust" came into Mac's hands in 1943 as a formula. Four years and much compounding later, No. 13 entered the field and radiators. Its guarantee: To keep radiators free from rust for a year, keep water clear, not injure cooling systems. Another neat selling feature is that No. 13 serves as a good water pump lubricant.

The companion radiator product, Mac's Stop Leak, depends on cellulose fibers in suspension to stop leaks, leave small radiator passages clear. Truesdail Laboratories, headed by Roger Truesdail, president of the American Council of Commercial Laboratories, developed the formula on commission by MacIsaac.

Other products of Mac's Super Gloss Co. include cleaners, heavy duty polish for used car dealers, rubbing compound, tire paint, top dressing and white tire coating.

DDT Pricing

A cut in production of DDT can be expected if DDT makers have to roll back prices because their limited supplies of chlorine will be diverted to more profitable uses. That was what members of the Agricultural Pesticides, DDT and BHC (benzene hexachloride) Manufacturers Industry Advisory Committee told Office of Price Stabilization officials at their first meeting.

Committee members said their industry favored continuation of pricing under the General Ceiling Price Regulation (GCPR). Of 12 companies represented on the committee, eight would experience rollbacks and four roll forwards in their DDT ceiling under the provisions of the Manufacturers' General Ceiling Price Regulation, CPR 22, a poll revealed. Four companies reported roll forwards and none rollbacks on BHC.

If and when CPR 22 becomes generally effective, dependent on the decision of Congress, the application of CPR 22 to manufacturers of DDT and BHC will still continue to be indefinitely postponed under the provisions of SR 12 to CPR 22.

Industry representatives recommended that this postponement be continued at least until October 1, when the current season will be over, to avoid disturbing the existing price structure in line with the purposes of SR 12. Any reductions which might result from application of CPR 22 before that time would apply retroactively in practice to shipments for the entire season, they said, and might force smaller firms out of business.

They expressed the opinion that supplies of DDT would be tight for the next two years, but that there would be ample BHC for all needs including exports. They were unwilling to make long-range pricing recommendations pending Congressional action on price control extension and its effect on CPR 22.

•

Weed Killer: Practically every type of herbaceous plant is said to be destroyed by a new weed and grass killer known as Lion Herbicidal Oil No. 6. Lion Oil Co. produces it by refining one of its high-grade, highly aromatic crudes. The product is relatively non-toxic and is claimed to be not dangerous to livestock, people or gardents, etc. adjacent to treated areas. According to the company, the new product, when used along railroad rights-of-way, is more efficient and economical than other kinds of chemical sprays.

•

Tanks for Street: R. R. Street & Co., Chicago manufacturer of emulsions and spotting products for the dry cleaning trade, plans to install three 8,000 gal. tanks for storage of soap-making fats and oils. The tanks, to be located on a siding, will permit a shift to more economical bulk purchases than possible with present drum purchases.

•

Fertilizer Tax: To raise funds for agricultural research, an extra five-cent per ton feed and fertilizer sales tax has been proposed for North Carolina. Backed by farm leaders of the state, the plan will be voted on next November 3 in a referendum among Tar Heel farmers.

•

APC for Aussies: Sales of aspirin-phenacetin-caffein tablets and powders, which have been the monopoly of registered pharmacists in Australia, will no longer be restricted in that country when an amendment to the Poisons Bill of Victoria goes into effect. Free sale of APC will be permitted with the lifting of restrictions on phenacetin. (Aspirin had not been restricted by poison regulations.)

•

Insecticide Testing: Raymond C. Crippen, Baltimore, has added an animal laboratory to test toxicities of agricultural chemicals, has also expanded its agricultural chemical research laboratory.

•

Rol Stalled: Fels & Co., Philadelphia, has temporarily postponed marketing of its new Rol liquid detergent.

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SPECIALTIES . . . .

Mold Lubricant: A parting agent for molds for plastics that provides a gas cushion at the mold-casting interface, has been developed by Vejin, Inc. (Cincinnati). It is an oil available in two forms—water- and hydrocarbon-dispersible—under the Vejin trade name. Main feature is that the material is good for six casts, in contrast to many other lubricants that must be re-applied after each cast.

The oil is applied by swabbing or spraying. Reaction at heat of cure forms the gas cushion. It works with all phenolic, urea, melamine and polyester resins, is especially recommended for use with reinforced plastic (glass fiber-resin) structural parts. It cannot be used for molding polyvinyl butyrate, for such plastics are soluble in one of the components of the product.

•

Laminate Finish: Improved resistance to moisture of glass fiber polyester laminates is offered by Garand Finish, a new development of Garan Chemical Corp. (Los Angeles). The new finish is said to minimize loss in mechanical strength of such laminates when in water or high humidities, a loss that formerly went as high as 40-50%.

It is applied on standard textile treating equipment. The product has been tested by the armed forces, aircraft manufacturers and commercial laminators, and their approval is expected, Garan reports.

•

Copper Cleaner: Housewives across the nation will shortly be offered a cleaner for copper kitchen utensils and other applications. Successful test marketing in Chicago and Detroit has led to this wider offering of the 8 oz fiber can of Cameo Copper Cleaner (Cameo Corp., Chicago) for 39¢.

Designed specifically for copper and its alloys, the product is a powdered mixture of dry acids, alkalis and abrasives. Applied with a wet cloth, it removes tarnish without scratching and restores a bright surface.

•

Swap Shop: Because the chemicals used in 100,000 sea water desalting kits (to make ocean water potable) become inactive after three to five years, the Air Material Command's supply division at Wright-Patterson Air Force Base at Dayton had to condemn them as no longer of use. However, the Air Force traded them to the Permutit Co. on the basis of one new kit for five old ones, got 20,000 new kits in the deal. Each condemned kit has $3 worth of reclaimable silver.

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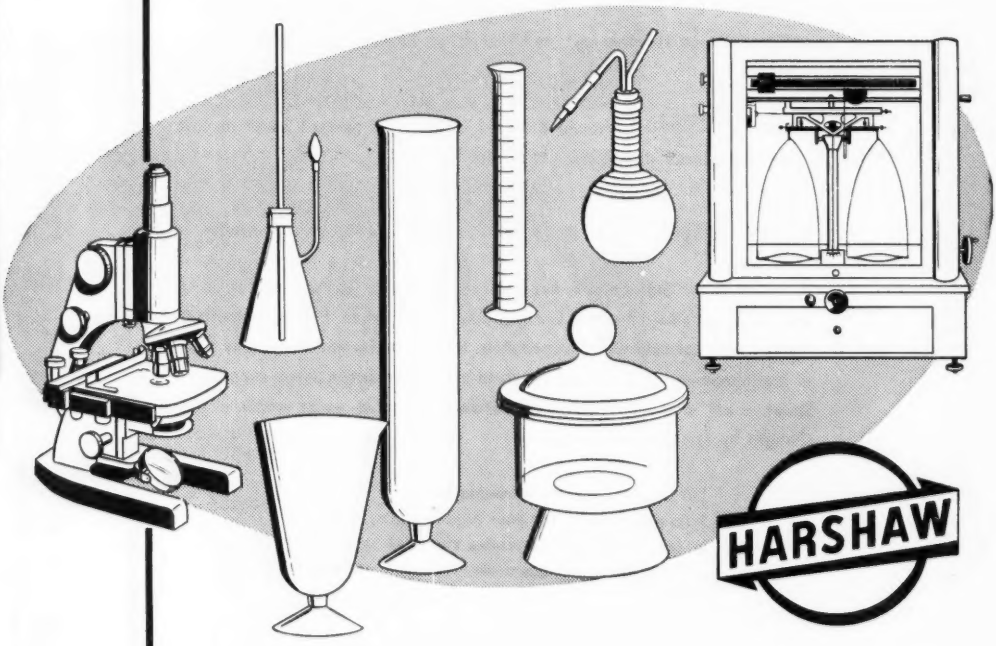

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BOOKS.....

1951 Canadian Trade Index, compiled and published by the Canadian Manufacturers' Association, Toronto, Canada; 1106 pp., $7.50.

This 1951 edition constitutes an authoritative directory of all products manufactured in Canada and the names (and addresses) of the firms making them. Published since 1900 with the purpose of stimulating Canadian industry, commerce and foreign trade, this volume presents an alphabetical list of over 10,000 manufacturers—their branches, trade marks and brands; a classified directory of products along with their various manufacturers; an export section plus a directory of exporters of agricultural produce and allied lines.

Advances in Enzymology and Related Subjects of Biochemistry, Volume XI, edited by F. F. Nord. Interscience Publishers, New York, N.Y., 479 pp., $9.

As the eleventh volume in the series, this book retains the objective of keeping the reader—research worker, teacher or scientific writer—abreast with recent advances in the various branches of biochemistry. Nine articles by authorities on their subjects deal with such topics as chlorophyll fluorescence and photosynthesis, thiol groups of biological importance, pectic enzymes, the nature of entropy, enzymic synthesis of polysaccharides as a biological type of polymerization, the biological transformations of starch, etc.

MEETINGS..

Natl. Soybean Processors Assn., annual meeting, Edgewater Beach Hotel, Chicago, August 16.

Tanners' Council of Amer., annual meeting, Waldorf-Astoria Hotel, New York, N.Y., August 21-22.

Amer. Pharm. Assn., Statler Hotel, Buffalo, N.Y., August 26-31.

Summer Symposium, Nuclear Energy Development, annual meeting, Oak Ridge, August 27-September 7.

Amer. Chem. Soc., Diamond Jubilee Meeting, New York, N.Y., September 3-7.

Amer. Soybean Assn., annual meeting, Fort Des Moines Hotel, Des Moines, Iowa, September 6-8.

PICTURES IN THIS ISSUE:

Cover (top) & p. 19—Wide World; Cover (middle) & p. 25—G. Barr & Co.; Cover (bottom)—Dow Chemical Co.; p. 9—Wide World; p. 17 (all three)—Ransier Studio; p. 35—C. W. Ackerman.

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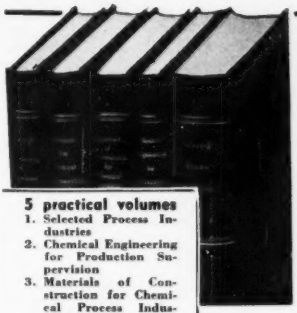

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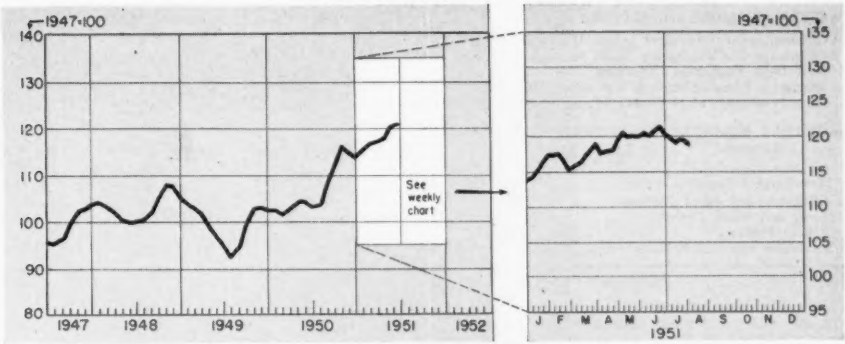

CHEMICAL INDUSTRIES OUTPUT INDEX — Basis: Total Man-Hours Worked in Selected Chemical Industries

Best market news of the week concerns benzene, one of the biggest and toughest supply hurdles in the path of the defense program. The glad tidings are found in the talk this week by L. A. Schlueter of the National Production Authority at Lowell Textile Institute. Mobilization estimates: 252 million gallons, expected supply: 250 million gallons.

Of the total supply, 175 million gallons will come from coke oven light oil, 25 million from petroleum, and 50 million from imports. By 1952, petroleum from benzene should be made at the rate of 40 million gallons yearly, 60 million by mid-1952, and 100 million by the end of next year.

But the shortage is apt to worsen in 1952, despite the steady increase of petroleum benzene. Mobilization is slated to call for 307 million gallons, imports are slackening.

Naphthalene users will find the supply pinch getting worse. Imports this year will be around half of last year's, and prices have zoomed beyond reason. Yet the work has started on three plant expansions to make phthalic anhydride from naphthalene. Barrett has two plants underway, Reichhold has one, and others want to get in the expansion move too. But with naphthalene production very close to the peak, some naphthalene-for-phthalic buyers are in for a squeeze.

Other straws in the wind point to a tightening up of supply for many chemicals. One major purchaser of chlorine for instance, finds it has never been harder to come by. Reason: heavier demand for insecticides and refrigerants.

And the NPA still has a dim view regarding supply improvement for the grand-dad of chemical shortages—sulfur. The unofficial consensus in that quarter: no real supply betterment until 1953.

MARKET LETTER

WEEKLY BUSINESS INDICATORS	Latest Week	Preceding Week	Year Ago
Chemical Industries Output Index (1947=100)	118.7	119.0	106.2
Bituminous Coal Production (Daily Average, 1000 Tons)	1,713.0	1,623.0	1,866.0
Steel Ingot Production (Thousand Tons)	2,029.0	2,027.0	1,920.0
Wholesale Prices—Chemicals and Allied Products (1926=100)	138.2	139.1	118.6
Stock Price Index of 14 Chemical Companies (Standard & Poor's Corp.)	246.6	244.0	169.8

MONTHLY BUSINESS INDICATORS—EMPLOYMENT (Thousands)	Latest Month	Preceding Month	Year Ago
All Manufacturing	12,989	12,991	12,066
Non Durable Goods	5,598	5,587	5,470
Chemicals and Allied Products	529	530	482
Paper and Allied Products	427	425	399
Rubber Products	223	220	199
Petroleum and Coal Products	197	194	181

Vegetable oils and fats have at long last started to solidify price-wise. Ever since February, their prices have been riding the chute, but soapers' demand for fall business made for a rebound. Coconut oil this week advanced 1½¢ a pound, tallow 1¢ a pound.

Copper sulfate stocks remain low as demand gnaws into supply. Government figures for June, the latest complete month, show inventories of 2,092 tons, lowest in many months, and less than a week's production. Despite this shrinkage, May exports are again on the upgrade, amounting to 35% of the entire output for the month. Biggest importer in May: Costa Rica.

An impending shortage looms in sodium silicofluoride, riding a mammoth boom for municipal water fluoridation. Estimated production for 1951 may hit 18 thousand tons, 50% above the 1950 level.

But public health officials look for demand to edge 50 thousand tons before long. To reach this mark, upward price adjustment of the ceiling will be needed. The industry advisory committee just met with the Office of Price Stabilization, cited the above figure.

Superphosphate fertilizer is caught in a price squeeze not unlike that of its byproduct, sodium silicofluoride. Members of this industry committee warn of dwindling superphosphate production, unless OPS raises its price sights. The industry group claims that otherwise it can't compete with other users for sulfuric acid supplies.

Some cogent reasons have been presented to bolster the higher price plea. Two important examples: higher sulfuric freight rate; curtailed production means higher unit cost.

SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending July 30, 1951

	Change	New Price		Change	New Price
UP					
Coconut Oil, tanks, Pacific ports	$ .015	$ .135	Soybean Oil, crude, tanks	$ .015	$ .15
Cottonseed Oil, crude,tanks,Tex.	.015	.15	Tallow, inedible	.01	.09
Rosin, gum, WW, Savannah, cwt.	.05	8.40	Turpentine, gum, tanks, Sav., gal.	.045	.695
DOWN					
Carnauba Wax, No. 1 Yellow	.01	1.21	Oiticica Oil, tankcars	.015	.27

All prices per lb. unless quantity is stated.

RAYON FROM VISCOSE: Bisulfide lack poses problem.

Bisulfide Hard to Garner

Allocations of carbon bisulfide in offing, as high-priority uses open up for rubber accelerators, refrigerants and propellants.

Least vital needs due for slash because of basic sulfur shortage. Biggest users, most likely victims: rayon and cellophane.

But more rayon blends for military uniforms, heavier demand for high-tenacity tire cord, will add to DO snarl.

Producers of carbon bisulfide right now are beset with twin problems: First, the product is too versatile for the supply. Second, the possibility of a cutback in sulfur supplies would make the present shortage seem trivial by comparison. The National Production Authority, meeting with industry advisory committees, is still discussing the question of allocations, but to date, no official action has been taken.

The NPA is considering adoption in the near future of some method of keeping tabs on supplies. One solution: the mild expedient of having all orders come to the producer no later than the 20th of the month preceding delivery. In this way producers could plan for more equitable distribution consistent with defense requirements.

More For New: So far, nobody has been seriously cramped by the growing shortage. The difference has been made up by shrinking inventories. But unless improvement is noted soon, less essential users may face some cutbacks.

The two largest uses are perhaps the most expendable: rayon and cellophane. Rayon alone takes more than half of the entire output of carbon bisulfide to dissolve cellulose as a part of the viscose process. The fastest-growing uses for bisulfide are as rubber accelerators and in the manufacture of carbon tetrachloride for Freon-type propellants and refrigerants. These uses find plenty of favor in the defense effort.

Of course, a goodly amount of rayon goes into making high-grade tire cord, but the greater fraction by far goes into civilian fabrics. This is where the slashes would hit first. Cellophane, too, would feel the pinch quite early.

Who and Where: Every avenue for supply relief is being explored by the bisulfide producers, who include Stauffer Chemical Co., Westvaco, Dow, J. T. Baker, and Old Hickory Chemical Company. Despite their efforts, however, bisulfide production hasn't been able to keep up with the demand. Output figures this year, are expected to be somewhere in the same neighborhood as last year—approximately 425 million pounds.

The change in distribution of end uses of bisulfide is estimated by CW as follows:

	1947	1949	1951
Rayon	64%	60%	57%
Cellophane	15	15	14
Carbon tetrachloride	15	17	19
Miscellaneous & export	6	8	10
Total	100	100	100

Considering how big the rayon bite is on the carbon bisulfide supplies any change has a big effect on the other users of the product. In 1949, the slump in all kinds of textiles brought a considerable easing in carbon bisulfide demand. Recent economic signs point to a slackening in the rayon demand, but only time will tell whether this setback will last for any prolonged period of time. If it does, then there may be a general unfurrowing of brows by other users.

SOS for Sulfur: Unless rayon demand does drop off, the only other possibility of supply improvement would be if sulfur supplies were boosted. But NPA thinking along this line is decidedly bleak as far as sulfur improvement is concerned. Present production is at a level of somewhat over 5 million tons a year, of which just under 20 percent is shipped abroad under various types of mutual economic or defense agreements. Despite outcries against this overseas-bound sulfur, no prospects are in sight for a cutback. And the NPA does not look for any significant improvement in sulfur until the end of 1952, if then.

One more alternative is available—making more carbon tetrachloride by chlorinating hydrocarbons, rather than from carbon bisulfide and sulfur monochloride. Here again is a stymie: shortage of nickel for reactors.

The Outlook: No easy way out can be expected from the carbon bisulfide pinch. The most obvious easing would come from a lower demand for rayon. Rayon producers, however, see a good prospective market for their fiber in blends for military uniforms. If a general go-ahead comes for such blends, look for tight supplies to get even tighter.

An increased demand for rayon can be expected as the direct result of the current expansion of the synthetic rubber program. Large amounts of high-tenacity rayon tire cord will be needed. And increased needs for rubber accelerators and refrigerants for cold rubber manufacture will haunt the carbon bisulfide supply.

If any use must be cutback, civilian cellophane could well become the first casualty to defense demands.

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Chemicals in Textiles

Each year finds more and more chemicals going to make synthetic textiles instead of merely modifying or processing natural fibers. Since the tremendous development of nylon, other chemical fibers have been brought out with a comparable potential market. Some of them: acrylonitrile, vinyl-based fibers, and condensation products of terephthalic acid with ethylene glycol.

This trend was highlighted in a recent address by L. A. Schlueter, Chief, Aromatic Chemicals Section, of the National Production Authority. The occasion: the first annual meeting of a Textile Workshop held under auspices of the Lowell Textile Institute Research Foundation. Purpose: to clarify existing chemical shortages as they affect, or will likely affect, the textile industry.

Fiber Fix: Textiles are only one of many industries affected by the chemicals pinch, but their position is more vulnerable than many. Reason: most textile applications are not top-priority and will usually take a back seat to needs more closely tied to the defense effort.

But the textile industry, paced by synthetic textiles, has met the supply challenge with gumption. One approach has been the development of alternative sources of raw materials. Schlueter refers to a company that has developed at least four different raw materials in making its synthetic fiber. That company of course is E. I. du Pont de Nemours; the product, nylon. Although this case is perhaps the most notable, the industry is replete with similar success on the part of other producers.

In Short: The synthetic textile companies depend largely on chemicals like acrylonitrile, ethylene, acetylene, and para xylene among many more. It is evident that new uses have opened up a lot faster than the original plant facilities can handle.

Chemicals used in modifying or processing of other-than-synthetic fibers are required in sizable quantities also but these are of a different kind. Among such semi-finished chemical products, one of the most pressing shortages is the squeeze on carbon bisulfide, needed to dissolve cellulose for rayon in the viscose process. Basis: universal sulfur shortness, heavier demand for rubber chemicals and carbon tetrachloride. Then, too, vexing lack of beta-naphthol and phthalic anhydride is playing hob in textile dyeing.

Hope Springs: Schlueter pictured a more cheering prospect for his listeners in the next few years, if they can weather the cramping nature of this one. Supplies of aromatic chemicals are slated to improve, including benzene and para xylene, to be made from petroleum fractions by platforming or similar operations. With this supply betterment, though, higher prices are expected from the newer, but costlier process.

Supply problems for the next decade should ease, according to Schlueter estimates. The reason: Coal hydrogenation will provide tremendous additional quantities of aromatics hydrocarbons, including naphthalene.

Korea Figured

Chemical producers and consumers alike are spending an unusual amount of time these days with some heavy reading. The subject: just-out figures by the U.S. Tariff Commission comparing production of cyclic (coal-tar) intermediates in the years of 1949 and 1950. Specifically, these benefits are looked for: First, a confirmation of the impact of Korea on their business; second, a picture of their chemical supply situation; and third, a better plan of what they will be able to do about it.

For, although the statistics apply only to coal tar intermediates, the effects represented by the production figures penetrated many segments of the chemical industry. As the report indicates, most of the products in this category increased substantially in 1950 over the preceding year. Part of the increase was on the way prior to mid-1950; but the big spurt, of course, came from the Korean crisis. The total output for all these intermediates came to 3.5 billion pounds, 40% above the level for 1949.

Advance Braked: Despite these general gains, advances would have been even more notable had it not been for basic shortages in benzene and naphthalene. Since these are by-products of coal tar, expansion has been seriously hamstrung by the fact that coking operations are at capacity. Hopes for getting more from this source soon are definitely not rosy. Imports of these products has not been adequate to meet the extra demand. Reason: Europeans eye the possibilities of making their own intermediates.

Even with these supply limitations, some of the larger volume intermediates scored heavy gains during the past year. Styrene gained about 25%, phthalic anhydride 44%, phenol 39%, and aniline 36%.

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- Potassium hydroxide, for dry cell batteries 16
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Mail to Chemical Week, 330 W. 42nd St., N. Y. 18, N. Y.

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Expires November 4, 1951

BOOKLETS . . . .

Chemicals

Toxaphene Agricultural Insecticides

24-p. booklet concerned with toxaphene agricultural insecticides, reviews history of the development of toxaphene, discusses the characteristics and control of various insect pests which are of economic significance, and lists the common and scientific names of these insects. State and Federal recommendations are given for the control of the different insect pests by toxaphene. Hercules Powder Co.

Lanaset Resin

12-p. booklet entitled, "Wool Shrinkage Control with Lanaset Resin," by J. Edward Lynn discusses lanaset resin, an alkylated melamine formaldehyde condensate capable of forming a highly insoluble resin on heat curing; the various sections deal with the physical properties of the resin, the methods utilized in its application, preparation of resin colloid solution, etc. American Cyanamid Co.

Anhydrides

16-p. booklet discussing firm's anhydrides used in acetate rayon, pharmaceuticals, photographic films, plastics and resins and surface coatings; data is given on physical properties and shipping details, along with bibliographic references to pertinent chemical literature on the subject. Specifications of the anhydrides are presented with a description of test methods used. Carbide and Carbon Chemicals Co.

Equipment

Magnetic Drive

32-p. technical booklet entitled, "Precision Speed Control with the Adjustable-Speed Magnetic Drive," discusses the magnetic drive and the magnetic amplifier regutron speed control, from the standpoint of operation, maintenance, speed control and applications. Electric Machinery Mfg. Co.

Vertical Turbine-Type Pumps

8-p. catalog describing firm's line of vertical turbine pumps designed for application where medium to high operating heads are required in a minimum of floor space; recommended for use in mine dewatering, dry-dock dewatering, condenser circulating, bulk liquid transfer, etc. Ingersoll-Rand Co.

Air Separation Plants

12-p. booklet published by English firm containing diagrams and details on large or small scale plants in the low-temperature gas separation field—for producing oxygen, nitrogen, and gases such as technical argon. Petrocarbon Limited.

Demineralizer

4-p. catalog covering the firm's standard demineralizer units, explains their construction, installation, operation and underlying principle, along with suggestions for their use in various manufacturing and chemical processes. The Industrial Filter & Pump Mfg. Co.

Instrument Tubing

2-p. bulletin featuring plastic-coated metal tubing for use where high corrosion resistance is required; installation photographs are included plus tubing service data for a number of applications. Samuel Moore & Co.

Electrical Tape

Brochure explaining the use of the firm's electrical tape No. 22 in combating the corrosive action of moisture, alkalies, oils, fats and fungi on underground gas service pipes. Minnesota Mining and Mfg. Co.

Radiation Instrument

4-p. booklet giving data and specifications on the "Penetron," an industrial radiation instrument designed to measure non-destructively the wall thickness of pressure vessels or piping by means of utilizing the penetrating power of primary or secondary gamma radiations. United Engineers, Inc.

Sump Pumps

8-p. folder containing construction and design illustrations, selection tables, capacity and size data along with specifications for the firm's line of vertical sump pumps. The Deming Co.

Magnesium salts from the sea
ORIGINAL PRODUCERS OF MAGNESIUM SALTS FROM SEA WATER
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Pittsburgh 22 ..... 738 Oliver Bldg.

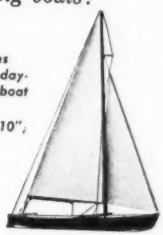
St. Louis 8 ..... 3615 Olive St., Continental Bldg.

FOR SPORTSMEN ONLY···

Can you identify these popular classes of sailing boats?

1 One of the fastest-growing classes of small one-design racing and day-sailing sloops, it passed the 2300 boat mark in 1946.

. . . L.o.a., 19' 0"; l.w.l., 15' 10"; beam 6' 6".

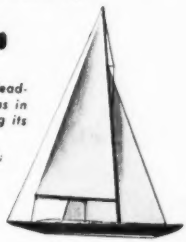


2 Designed in 1939 by a crack Marblehead racing skipper for maximum performance at a comparatively low price.

. . . L.o.a., 24' 0"; beam 4' 2½"; draft 2' 9½"

3 Before the war, one of the leading classes in Europe as well as in this country . . . now regaining its popularity.

. . . L.o.a., 36' 9"; l.w.l., 22' 7"; beam, 6' 4"; draft 5' 3".



4 First appeared at Port Washington, L. I., in 1911. By 1940 the class was represented by 130 local fleets sailing in 25 different countries.

. . . L.o.a., 22' 8¾"; l.w.l., 15' 6"; beam, 5' 8¼"; draft, 3' 4".

See next column for answers

Just as these classes of sailing boats are examples of some of the many now enjoyed by yachtsmen everywhere, the above products are typical of the diversity in "B&A Quality" Fine Chemicals. To meet the needs of today's chemical process industries, B&A offers a wide range of these products. Many of them may be suitable for your requirements. For a new, complete listing, write today for booklet FC-8.

FOR CHEMICAL USERS ONLY···

Which of these B&A Fine Chemicals fit your production needs?

★ SULFUR HEXAFLUORIDE—SF_6

First offered for sale in commercial quantities by General Chemical, Sulfur Hexafluoride, SF_6, is an inert, non-toxic gas with a very high dielectric strength. SF_6 is currently finding use in transformers, co-axial cables, capacitors, and other high voltage equipment: for with it, operating efficiency can be stepped up while overall construction and maintenance costs may often be lowered. For example, in power cables, Sulfur Hexafluoride makes it possible to maintain voltages over greater distances with lower power loss.

★ ACID FLUOBORIC—HBF_4

Baker & Adamson Fluoboric Acid assays 42-45% HBF_4. Low in metallic impurities, it is finding increased use in numerous metal cleaning and finishing operations. Among its many applications are the electropolishing of Aluminum; metal finishing, and the cleaning, pickling, dissolving and stripping of metals. It also finds use as an electrolyte for low temperature batteries, and for acidizing oil wells.

★ POTASSIUM FLUORIDE—KF

Produced in anhydrous form, assaying 99% minimum KF, Baker & Adamson Potassium Fluoride is particularly low in heavy metals. Although relatively new to the industrial scene, it already has numerous important applications in the metal industry. There it is used in the manufacture of fluxes, baths for the soldering and brazing of silver, and for the removal of magnesium in refining scrap aluminum.

★ CUPRIC FLUORIDE—$CuF_2 \cdot 2H_2O$

A uniform pale blue-green powder assaying 45% minimum copper content, this product has been produced in commercial quantities for only a relatively short time. It is currently finding use in the manufacture of cast iron, where it aids in the production of an iron with greater tensile strength, better machinability, and less brittleness.

Yachtsmen will quickly recognize these popular boats as belonging to the following classes: (1) Lightning, (2) 110, (3) International six meter, (4) Star.

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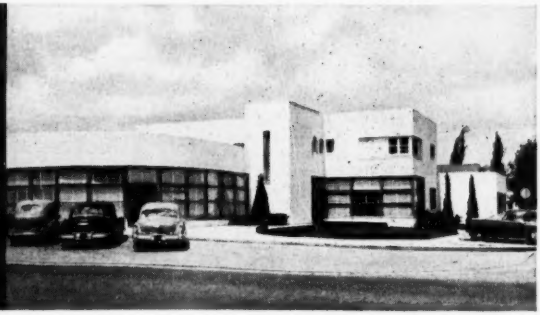
* Complete stocks are carried here.

WITCO EXPANDS

its research and technical service facilities

IN CHICAGO

Witco's Chicago research laboratory including new addition.



New carbon black research laboratory of Witco-Continental.

IN AMARILLO

In Chicago, Witco has completed a new addition to its research and technical service laboratory. Work in this new unit will be devoted to research on a variety of organic chemicals.

In Amarillo, Witco-Continental has opened the doors of its new carbon black research and technical service laboratory. This new unit will specialize in problems in the carbon black field.

In both cities and in both laboratories, experienced Witco researchers will strive to develop new and better products, as well as help you with any technical problems concerned with the use of Witco-made chemicals.

If you are in either vicinity, why not pay us a visit? We'd welcome the opportunity to take you on a sightseeing tour.

Metallic Stearates • Carbon Black • Paint Driers • Sunolite® (Anti-sunchecking Wax) • Asphaltic Products • Witcote® (Automobile Undercoating) • M.R. (Hard Hydrocarbon) • Stabilizers for Vinyl Resins Butyl Stearate • Fatty Acid Esters

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